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The Human Side Of Energy

STUDENT GUIDE INSIDE

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VIEWS

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Alberta
ENVIRONMENT

Introduction: Gillian Sniatynski

Humans And Energy

The future forks into two diverging paths.

Well, we want him. We must be patient, persistent and consistent and he'll learn to be gentle with the things around him and put them back in their place when he's finished with them.
INDUSTRIAL MACHINE

The title of this issue of *Environment Views* was borrowed from that of a conference held in August, 1981, in Edmonton.

The Second International Forum on the Human Side of Energy was intended, in the words of one of the organizers, to examine the "people consequences of energy."

The first forum, held in Laramie, Wyoming, the year before, was born of the intense concern felt by many social researchers and social workers about the human impacts of major energy developments. They wanted to examine those impacts more closely, and work on ways of making them less extreme.

The Canadian contingent at the Laramie conference, aware of all the problems looming in booming Alberta, offered to host the 1981 conference in Edmonton. (The table on Page 4, even excluding the problematic Cold Lake and Alsands projects, suggests what's to come in Alberta.)

The fact that many of our problems were imminent rather than actual allowed for a somewhat broader approach. Instead of focussing on responses to impacts already being felt, it made sense to talk more about advance planning. Even more important, in a political climate in which several megaprojects were striking serious snags, it made sense to discuss alternative energy sources and conservation measures too.

The fact that planning for megaprojects, and planning for alternative energy use, represent different philosophies, was pinpointed in the conference's keynote address by the Honorable Mr. Justice Thomas Berger of the Supreme Court of British Columbia, and commissioner of the 1974-78 Mackenzie Valley Pipeline Inquiry. (An excerpt of that address appears on Page 6 as the *Viewpoint* feature).

Conventional wisdom, he said, perceives industrialization as the means to prosperity and well-being. But this has led to a belief in an ever-expanding cycle of growth and consumption, which "conditions our capacity and our willingness to reconsider or even to contemplate, the true goals of the industrial system. There is a feeling that we cannot pause to consider where we are headed, for fear of what we shall find out about ourselves."

It's clear, says Berger, that North Americans are going to have to get along with a smaller share of the world's resources.

"I am not urging that we dismantle the industrial system," he adds.

"But I do say that we must pause, and consider to what extent our national objectives are determined by the need for the care and feeding of the industrial machine.

"The issues are in fact profound ones, going beyond the ideological conflicts that have occupied the world for so long; conflicts over who was going to run the industrial machine, and who was going to get the benefits.

"Now we are being asked, how much energy does it take to run the industrial machine, where does the energy come from, where is the machine going, and what happens to the people who live in the path of the machine?"

If Berger's analysis is right, it seems to follow that those who promote energy megaprojects such as tar sands plants and heavy oil developments are committed to the expanding cycle of growth and consumption, and preoccupied by the care and feeding of the industrial machine.

Many of them are *also* asking Berger's

Petrochemical and Resource Development Projects in Alberta

Project	Location	Value	Employees Construction	Employees Operation	Construction Period	Type
** Shell Refinery	Scotford	$525 Million (1980)	2000 peak (1982)	232	1981-1985	Refinery
** Shell Styrene	Scotford	$160 Million (1980)	690 peak (1983)	121	1981-1984	Petro-Chemical
** Dupont AEC	Redwater	$200 Million (1981)	640 peak (1983)	180	1982-1984	Petro-Chemical
** Imperial Oil Expan.	Strathcona					Refinery Expansion
* Dow Chemical VCM Polyethylene	Ft. Sask.		1400 peak (1983)		1981-1985	Petro-Chemical
** Celanese VCM Methanol (1980)	Strathcona					Petro-Chemical
** Sherritt Gordon	Ft. Sask.	$265 Million (1980)	500 Average 900 peak (1982)	120	1981-1983	Fertilizer
** Petalta	Bruderheim	$600 Million (1981)	2000 average (1984)	300	1982-1984	Petro-Chemical
** C.I.L.	Edmonton	$128 Million (1981)	428 Maximum	85	1982-1984	Petro-Chemical Expansion
** Gulf	Strathcona	$190 Million (1980)	319 peak	50	1980-1983	Refinery
* Esso Ethylene	Redwater	$700 Million (1981)	900 average 200-1500 range	300	1983-1986	Petro-Chemical
* Dow EOG (ethylene oxide glycol)	Ft. Sask.					Petro-Chemical
* ENESCO Chemicals Ltd.	Scotford	$242 Million (1980)	570 (1984)	91	1983-1985	Petro-Chemical
Biewag Energy Dev. Ltd.	Waskateneau	$650 Million (1981)	2000	240	1983	Petro-Chemical
** Esso Agricultural Chemicals Complex Expansion	Redwater		1200 (1982)		1980-1983	Fertilizer Expansion
** AGE III	Joffre	$591 Million (1980)	1040 peak (1984)	93	1982-1985	Petro-Chemical - ethylene
** Union Carbide	Prentiss	$259 Million (1981)	900 peak (1983)	120	1982-1984	Petro-Chemical
** Shell/Nova	Joffre	$159 Million (1980)	400 peak (1983)	150	1982-1984	Petro-Chemical - polyethylene
* Suncor/Ft. Kent	Ft. Kent	$88 Million (1981)	150 peak (1982)	25	1982-1983	Pilot "in site" expansion
* BP Wolf Lake	Wolf Lake	$31 Million (1979)	N/A	15	N/A	Pilot "in site" expansion
* Manalta	Mercoal	$300/400 Million (1981) estimate	506 peak (1984)	600	1983-1985	Coal Mining
* Manalta	McLeod River	$350/450 Million (1981) estimate	690 peak (1984)	850-900	1983-1985	Coal Mining

* Proposed
** Approved and/or under construction
Major Resource Development Projects:
Does not include projects which are not public knowledge.
Compiled by Alberta Environment's environmental assessment division.

questions about energy sources for the machine, its direction, and the fate of the people in its path. But the needs of the machine continue, for them, to be paramount.

Energy industry spokesman, who are understandably among the machine's major supporters, rightly point out that it must be fuelled in order to meet the demands of the consumer public.

Those demands, they say, are unlikely to diminish much. "The public," said one oil company representative, "is now much too sophisticated for such a possibility to exist."

So nothing, apparently, is to prevent the invasion of the few remaining frontiers — the Arctic, offshore Newfoundland — in the search for oil and gas, and the costly extraction of useable fuel from tar sands, heavy oil, and hitherto less attractive coal deposits.

Unless carefully regulated, the effects of such developments on both the biophysical and social environment can be devastating. Berger spoke eloquently in his address of the threat pipeline construction would pose to the Porcupine caribou herd, and the white whales of the Beaufort Seas — to say nothing of the effects on a fragile, land-dependent native economy and culture. Even in less isolated areas, the boom-town syndrome suffered in the wake of major energy developments is well-known. Small rural communities mushroom overnight into towns of a quite different character. An influx of strangers, support services unable to meet new demands, and a dramatic increase in social problems of all sorts, can be side-effects.

If the assumption that megaprojects must proceed seems to be unquestioned, at least they can no longer proceed willy-nilly. Much of the Human Side of Energy conference was devoted to discussions about mitigating their worst effects.

In this province, Alberta Environment is authorized to order the developer to prepare and submit an Environmental Impact Assessment, before project approval can be given. This describes in detail the existing environment, and identifies and analyses the possible effect of the development on present land uses, air, water, geology, soils, vegetation, fauna and the human environment. Specific recommendations are made to reduce or eliminate negative impacts; those that can't be resolved are clearly identified and must be weighed in the making of final decisions about the project.

Historically, says Ken Smith, director of the department's environmental assessment division, the "human" part of the impact assessment procedure was recognized early in the 1970s. It was included as an area needing consideration — but was not given a lot of emphasis. Resource agencies and developers at that stage were more familiar with biophysical concerns. Gradually, as awareness of socio-economic impacts increased, so too did their importance.

Communities themselves are the best judges of what the likely impacts of a development will be. In the Alberta Environment process, public participation is the means whereby communities are helped to identify what's going on and what they can do about it.

It would be wrong to suggest that energy companies are dragged into this process kicking and screaming. Most say now that it's good business to do all that's required of them. Many claim to do much more.

It's partly a matter of public relations. Industry spokesmen acknowledged that having the company name associated with an environmental disaster wouldn't do much for sales at the gas pumps, for example.

Dennis Wieler, supervisor of socio-economic planning for Husky Oil Ltd., points out that in the development of a major project the company has to be as sensitive as possible to a triad of interests — those of the community involved, those of government departments and their elected officials, and those of the shareholders.

Other energy company representatives would like to stress that they do indeed perceive community interests as legitimate, and want to do the best they can for them.

The best is sometimes surprising. Take the case of Dome Petroleum's efforts in the Beaufort Sea.

The company's oil and gas explorations during the past several years affect seven communities along the Beaufort Sea coast — the best known of which are Inuvik and Tuktoyuktuk.

Permission to drill in the area (supplied by the federal government) is contingent upon the annual presentation of three pro-

Alberta Government Photo

grams — technical, environmental protection, and socio-economic — and upon frequent reviews to determine program success.

Rose Marie Karnes, Dome's supervisor of northern affairs, notes that the socio-economic program deals with such issues as the hiring and training of native people, business and economic development in the area, community consultation, and social and cultural support.

How does this translate into practice? Karnes has many examples:

- In 1981, Dome hired some 400 northern people, about 95 per cent of them native. Allowing for turnover, this represented about 23 per cent of the total northern work force — and the proportion is steadily increasing. Native employees are also given leaves of absence during peak hunting and fishing times, so the traditional economy is able to continue.
- During the winter, when drilling stops, the Inuvik base camp is turned into a school. Some 60 to 80 people take part in training programs for heavy equipment operators, plumbers, welders, computer operators and so on.
- The company helps relieve some of the strain it puts on community infrastructure by helping to maintain sewage lagoons and garbage dumps. It has also lengthened the airstrip, introduced banking services, and is a major supporter of the day care centre. It makes monetary donations to support events like the Northern Games, or local alcoholism programs.

This, as well as involvement in ongoing consultation with community representatives, to help prepare the way for increased growth and development anticipated when production starts. Consultation also enables the company to respond to specific demands. The community of Tuktoyuktuk, for example, was unwilling to see any expansion of the company's 14 hectares of materials storage. So new storage yards were built at Mackinley Bay.

During the geese hunting season in May and September, locals feared the company helicopters would frighten the birds away. So the helicopters were rerouted.

Karnes says Dome sees its efforts in the north as a long-term operation, and is "trying to do things right."

So are many other energy companies. Dome is just one example.

The real issue does not concern the authority of government or the willingness of industry to reduce the ill-effects of major energy projects. The issue is rather the assumption that the megaprojects must go ahead, the continued commitment to the cycle of growth and consumption.

Dixon Thompson of the University of Calgary's faculty of environmental design contrasted the "hard" energy path favored by current energy policies with "soft" or alternative energy paths in a paper at the Human Side of Energy conference.

Soft paths, he said, would place much greater emphasis on conservation; would match energy quality to end use; would foster cogeneration of electricity and heat; would utilize agricultural and forestry wastes for energy production; would give renewable energy sources the same tax breaks and subsidies as megaprojects and conventional energy sources; would price energy at marginal or replacement costs; and would include all social and environmental costs in the pricing.

There are many reasons why the hard energy path continues to be favored, says Thompson. The main one is the federal government's "insane half-price policy" by which the use of fossil fuels is heavily subsidized. Other factors, like habits of operation and sunk investments, build resistance to change. And the fossil fuel companies and hydroelectric utilities have the large cash flows, the credit ratings, the government guarantees and the business contacts to be able to raise the money for the megaprojects they think will solve our energy problems.

The soft energy path is the path of a conserver society. According to another conference paper, there are two ways to achieve it — from the top down (incorporating the sorts of measures suggested by Thompson) or the bottom up (through millions of isolated actions by companies, groups and individuals).

If we take seriously Berger's invitation to consider to what extent we are preoccupied by the care and feeding of the industrial machine, and if the "top down" option isn't open to us, then we have to work from the bottom up.

If that's what we choose, then we must work in a spirit of optimism — because, says Thompson, pessimism is a self-fulfilling prophecy.

Thompson found some encouragement in many of the discussions at the conference — increasing emphasis on conservation, the use of diverse energy sources, consistent opposition to nuclear energy, and greater support for alternatives as the megaprojects strike snags.

The time has now arrived, he feels, when "those of us who have been advocating radical ways to conserve energy . . . now have the facts on our side."

This issue of *Environment Views* looks at the two assumptions already dealt with here — the first being that major energy projects must and will go ahead, the second that alternatives to the megaprojects are possible. The stories on Pages 7, 10, 13, 17 and 21 are in the first category. They deal with issues like the effects of social impact assessment, and with case studies of communities meeting major energy developments with different degrees of preparedness. The stories on Pages 25 and 29 deal with alternatives.

Gillian Sniatynski is the freelance editor of this magazine.

It was incorrectly reported in the October-November-December issue of *Environment Views* that Alberta Energy and Natural Resouces was conducting the Beaver River Basin Water Resources Study. In fact that study is being done by the planning division of Alberta Environment.

VIEWPOINT

Thomas Berger

"Our whole inclination in Canada has been to think in terms of expanding our industrial machine to the limits of our country's frontier."

This article was extracted from the keynote address to the Second International Forum on the Human Side of Energy, in August, 1981. Mr. Berger had been speaking of the impact of industrial advance on Canada's indigenous people. He focussed on the Mackenzie Valley Pipeline Inquiry, established to examine the social, economic and environmental impact of a pipeline proposed by the oil and gas industry to run from the Arctic to the United States. After dealing with some of the ecological problems such a pipeline would create, he turned to the lifestyle and world view of the people of the area . . .

Alberta Government Photo

We had been committed to the view that the economic future of the North lay in large-scale industrial development. There had been generated, especially among Northern business, an atmosphere of expectancy about industrial development. There had always been a traditional renewable resource sector in the North, but instead of trying to strengthen it, we had, for a decade or more, followed policies by which it could only be weakened or even destroyed. We believed in large-scale industrial development and depreciated the existing economic base. Indeed, people who tried to earn a living by hunting, trapping and fishing had often been regarded as unemployed.

I found that the development of the non-renewable resources of a region can bring serious pressures to bear on its population: people who try to continue to live on the renewable resources may experience relative poverty and may be faced with the loss of a productive way of life. Gradually more and more people may give up one kind of work, and therefore relinquish the way of life associated with it, in favor of another kind of work and life. Where this has happened, they often feel they had very little choice in the matter. If the neglected sector of the economy represents a preferred or culturally important way of life, if it is a means of self-identification and a source of self-respect, then the devaluation of that way of life can have widespread and dismaying consequences. These consequences are exacerbated if the industrialized economy offers rewards that are only short-term.

This implied a new set of priorities for northern development: the strengthening of the traditional hunting and trapping economy; the development of local logging and sawmilling operations where there are merchantable stands of timber on the Mackenzie, the development of the fishing industry, the development of recreation and conservation; an orderly programme of petroleum exploration in the Mackenzie Delta and the Western Arctic; and in due course a pipeline along the Mackenzie Valley. Native people - given this set of priorities - could participate in all of these economic activities. The advance of the industrial system could be orderly and beneficial to all . . .

The pace of industrial development is the key. I concluded that in the Mackenzie Valley and the Western Arctic industrial advance on a massive scale would graveliy weaken the renewable resource sector, and that its social impact would be disastrous. I urged that the rate of advance should be calculated so as not to overwhelm the existing economic base.

We think of the city, of the metropolis, as the mirror of progress. So hunting, fishing, and trapping in the far North is not thought of as a way of getting a living that any people who believe in development would want to pursue.

In the same way, we in the industrialized nations often think that the model of economic development that our own experience represents is the only one to which Third World countries ought to aspire. But such a model invariably requires an emphasis on large-scale centralized technology at the expense of traditional values and local self-sufficiency.

If the sole emphasis of government policy is on the development of non-renewable resources - if that is to be the only kind of development, the social impact of such activity will be magnified throughout the entire region. People will be drawn into it for want of any alternative and the social impacts will proliferate in places far from the project itself. You will get a massive shift in employment, disruption of family and community life, and a plethora of problems in urban centres. Only balanced development can ameliorate or avoid such effects . . .

Our whole inclination in Canada has been to think in terms of expanding our industrial machine to the limit of our country's frontiers. It is natural for us to think of developing the frontier, of subduing the land, populating it with people from the metropolitan centres, and extracting its resources to fuel our industry and heat our homes. We have never had to consider the uses of retraint.

The question that we and many other countries face is, are we serious people, willing and able to make up our own minds, or are we simply driver, by technology and egregious patterns of consumption, to deplete our resource wherever and whenever we find them?

The Honorable Mr. Justice Thomas Berger is a justice of the Supreme Court of British Columbia. He was Commissioner of the 1974-78 Mackenzie Valley Pipeline Inquiry.

Sharon Adams

Never The Same Again

A new breed of community activist is evolving.

Communities can be changed suddenly, and irrevocably, by even the possibility of large-scale development. Things are never the same again. Even if the development doesn't go ahead, the people of the community have been touched by change, and as a result, have themselves changed.

Romeo Lauzon, a LaCorey-area farmer who took part in the Energy Resources Conservation Board hearing on Esso's proposed Cold Lake oil sands plant, says community participation in the hearing was "a lesson in democracy."

But Mabel Strayer, wife of a Riverhurst-area trapper, who helped Lauzon, says the lesson was tempered by social upheaval.

"People have changed," she says, "and I don't think for the better."

Development, and the threat of change, can stir up resentment in a community as neighbors and relatives take opposite sides on an issue.

In the Cold Lake area, for instance, the farmers and trappers worried about negative impact on the land or environment, while their businessmen neighbors were looking forward to a quicker pace of business and rocketing land values.

It is because of the inevitable changes in the human environment that Alberta Environment requires, as part of its Environmental Impact Assessment Guidelines for development approval, that developers not only consider the economic and environmental impact, but consider the people of the area as well. Naturally, the developer is expected to involve the public in gathering this information.

The Alberta Environment brochure, *Environmental Impact Assessment System,* explains an impact assessment is "a detailed statement of a proposed development submitted by the developer or proponent. It must describe in detail the existing environment and identify and analyze the possible impact of the development upon present land uses, air, water, geology, soils, vegetation, fauna and human environment." The developer, it adds, must make recommendations to reduce or eliminate negative impacts and "those that cannot be resolved are clearly identified and must be weighed in final project decisions."

However, individual communities have also ordered social or community impact assessment to help them plan for the future.

Lauzon, chairman of the Lakeland Environmental Agricultural Protection Society (LEAPS), said to prepare for interventions, community members had to start from a basis of no knowledge about the procedures involved.

"When we received the notice of the ERCB hearing . . . we said 'what does ERCB mean?'"

"Scared as hell," he not only stood up on the first day of scheduled hearings before the ERCB to request a postponement so the community, involved in harvesting at the time, could better prepare its case, but he went on to testify and be cross-examined for seven or eight hours during the proceedings.

Lauzon says both he and his community have learned "to voice opinion better."

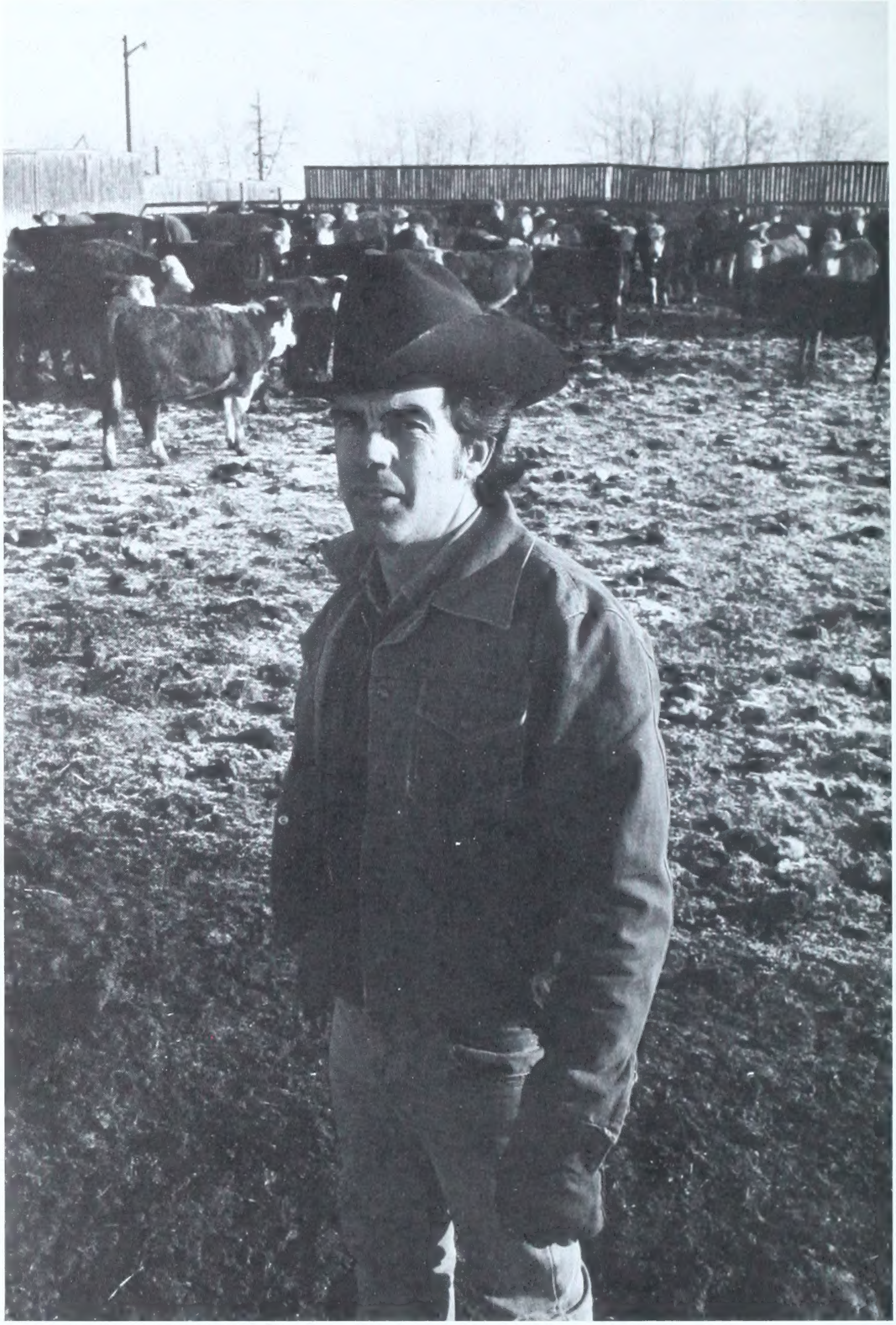
But it was difficult in the beginning, especially in the face of his fellow farmers' apathy.

"Even other farmers told me I was just wasting my time, that they're (the developers) coming anyway. But I had to try."

Strayer had much the same experience. Though her husband was involved in preparing an intervention for local trappers, she had never been involved in anything like it before.

"I didn't know I had it in me," she says.

Romeo Lauzon (right).
Participant at Cold Lake ERCB hearings (below).



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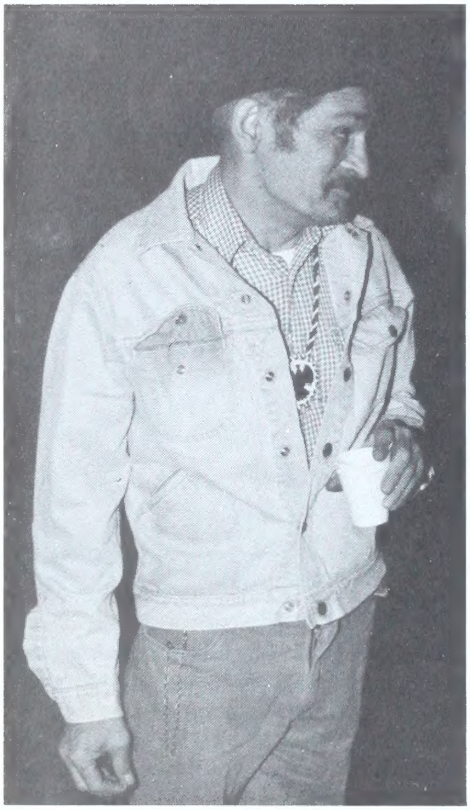


"I feel differently now. Then I felt like it was the end of the world. The pilot plant would have adjoined our land. My husband's registered trapline was on the development. The main road runs right past our place."

But in preparing the information for the LEAPS presentation, and in attending the hearing, "I learned to appreciate other points of view. Even though people were pro-oil, I soon realized they felt just as strongly as I did. And I found out they had their reasons, too."

After the Cold Lake hearings Strayer attended a workshop on hazardous wastes, came back to her community and with others who attended, presented the information they learned to the Municipal, Town and District Councils and agricultural service agencies.

"I'm not afraid to speak in public now. Before, I sat in the back row and didn't dare cough."

Generally, the community has learned some lessons on how to take part in the political process as a result of either working on or watching the Esso ERCB hearing.

For instance, now some in the community are upset by planning provisions in the Airport Vicinity Protection Area, and are beginning to organize to ensure their concerns are addressed.

"We'd have sat on our hands 10 years ago and would have been afraid to do anything. Now, the Municipal District is going to take another look at it (as a result of community agitation.)"

John Shires, an Alberta Environment public participation officer in Red Deer, describes the five-day ERCB hearing into location of a petrochemical plant near Lacombe as "a classic example of farmers finally getting up off their pratts and shaking their fists."

George Friesen, a farmer in the Lacombe area, said the first indication he and his neighbors had of the pending development was "when there were landmen in the area to acquire the land."

At first, they feared the development was for a hazardous wastes plant, but were no less concerned when they realized the plans called for development of a petrochemical industry.

They formed an organization called Protect Agricultural Land (PAL). Friesen was elected to the board.

At the Cold Lake ERCB hearings.

The first step, said Friesen, was to make sure the ERCB would address the issue of preservation of agricultural land.

"We informed the ERCB that they were remiss if they didn't include food as energy and land as a resource and put an expert on the board who could understand the issues and deal with them."

Though the ERCB panel included such an expert, Friesen says he came away more cynical than he had been before.

"Once the ERCB deals with the feedstock issue, then the land issue is secondary. Even if the ERCB is set up to hear it (the land issue), I'm afraid there are not going to be many changes."

This is exacerbated by misunderstanding in the community of the threat to agricultural land (disappearing due to urban expansion and industrialization) and because of simple greed. Agricultural land sells for less than industrial land.

Friesen says PAL is currently gearing up for a hearing about a coal development near Alix. In years past such "meddling" in affairs of communities outside their own area would have been unlikely, but, he says, people are becoming politicized by energy development.

Years ago, ordinary citizens had only a dim understanding of the political process through which development applications must pass — and they trusted their elected representatives to look after their interests. And development was on a much smaller scale.

Now industrial expansion not only means site disturbance, but urban expansion as well. Labor-intensive plants mean additional employees moving to town, and an accompanying expansion in secondary industry.

But it isn't only those communities trying to get the best development possible that seek to be part of impact assessments.

Grande Prairie, for instance, facing an 11-per-cent annual growth rate, decided a community impact assessment would help predict what services would be needed in the future.

But a community impact assessment is not a crystal ball, says Chris Andersen, chairman of the Grande Prairie and District Community Impact Assessment Committee.

The Northern Alberta Development Council gave $37,000 for the eight-month study. Local industry and the city kicked in another $8,000 so a consultant could be hired. A consultant, it was thought, could devote the amount of time needed for such a large project, and would be free from local bias.

The steering committee established to guide him included members from the United Way (Andersen), Preventive Social Services, the local health and mental health units, Alberta Culture and local business.

Terms of reference drawn up by the committee called on the consultant to look at the area's rapid growth, give the community a glimpse of the future and advise how to minimize adverse effects.

The weakness, says Andersen, is that "there were probably eight or nine different interpretations of what those terms of reference meant." Some goals set, they soon realized, were unattainable.

"My personal opinion is that for $40,000 and five months' work — forget it! But I felt the report might have helped us establish individual agency requirements. For instance, it might have told us what St. John's Ambulance requirements might be three or four years down the road. Of course, it couldn't do that."

The exercise, he says, was successful, though all the elements for community unrest were there.

"It brought a lot of people together. People got involved with the thing, and learned a lot about their community. I found out for instance that we were a lot better served than I thought, with close to 450 agencies in town. We thought there were about 80. I'd grossly underestimated the complexity of my own community."

Now city council is examining the proposals in depth.

Drew Lamont, Alberta Environment's public participation officer in Grande Prairie, says the city's social consciousness was raised.

"Where social issues were never a concern before, the last (municipal) election was run on social issues." He attributes at least part of the reaction to the impact of the assessment.

While Andersen says communities can benefit from such assessments, Lamont cautions that "we have overpromoted the base of knowledge people need in order to make informed decisions. Communities want impact studies done to give them statistical predictions, but if the statistics and information is poor, or the community can't agree on what to do with the information . . . "

The danger in having someone from outside do an impact analysis is that that person is sometimes expected to solve the community's problems.

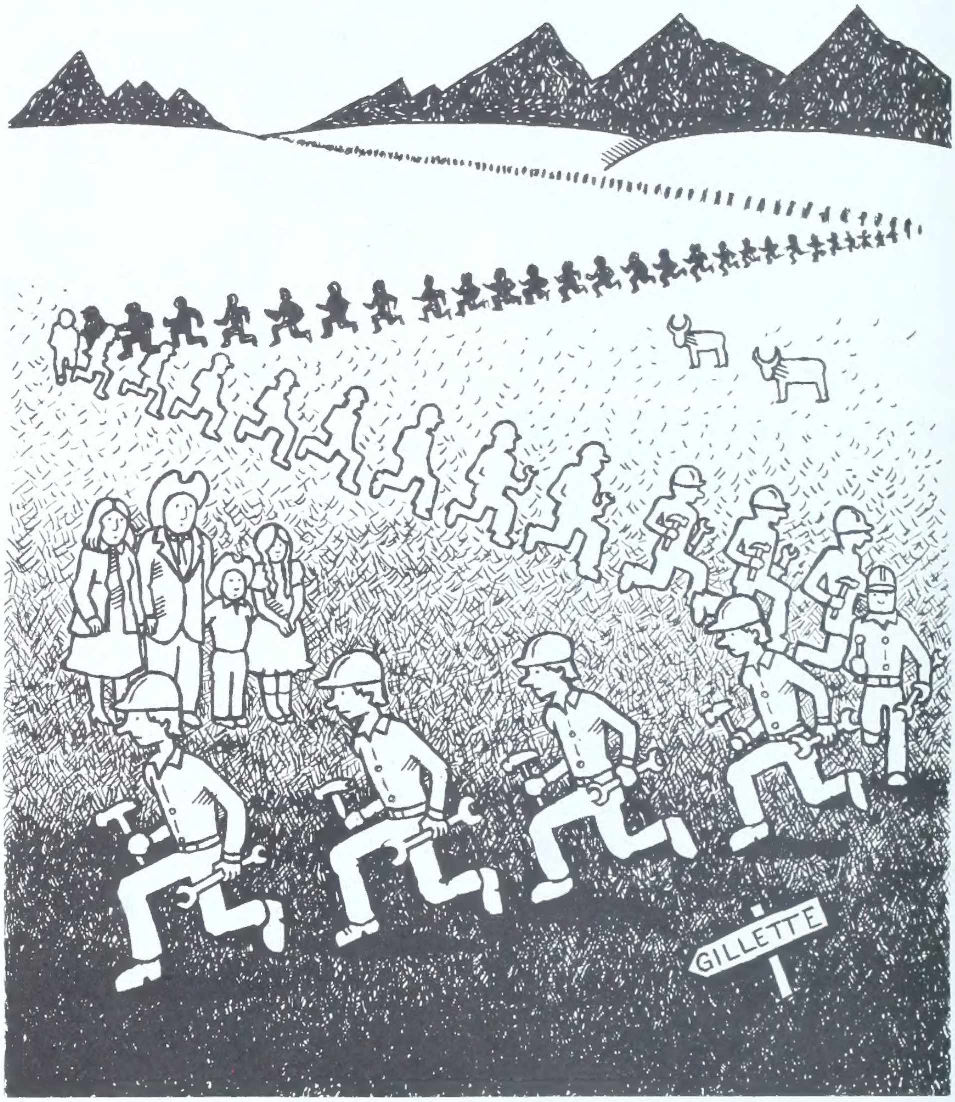
A community is able to "draw up its own dreams," Lamont says.

Sharon Adams is a journalist in Calgary.

Norma Ramage

The Other Side Of The Boom

The old-timers have to make some unwelcome adjustments.



Big energy developments can mean new jobs and lots of money. They can bring prosperity to dying towns. But they can also bring problems like high divorce rates, increased alcoholism, rocketing crime statistics and the rending of the social fabric that holds a community together.

After decades of relative obscurity, the small and isolated towns of the United States' mountainous northwest have been catapulted into the industrial twentieth century by the search for increasingly rare fossil fuels. Projects from coal mines to nuclear plants, from gas wells to oil shale extraction, have turned formerly sleepy little communities in states like Wyoming, Montana, Colorado and North Dakota into sprawling "boom towns."

Estimates in 1980 showed approximately 200 boom towns had come into existence along the eastern slopes of the Rocky Mountains. So many have sprung up that the impact of energy developments has become a major study in western U.S. universities.

Two towns that have recently felt the impact of the energy boom are Gillette, Wyoming and Colstrip, Montana.

The citizens of Gillette are a bit sensitive about the fact that their hometown has come to be synonymous with the Gillette Syndrome — the blanket title for a variety of social, economic and psychological upheavals suffered by citizens in the so-called energy boom towns.

Gillette has become the archetypal boom town. Its transition from peaceful market town of 5,000 to bustling coal mining city of 20,000 has been microscopically examined, studied and discussed by scientists and journalists.

Back in the 'fifties, it was one of several, mid-size market towns in a primarily cattle ranching, rural area of Wyoming. It was the place local ranchers sent their children to school or bought the groceries or had an evening out.

Then in the early 'sixties, the first of two booms hit Gillette when oil wells were opened up in the area.

The oil boom had no sooner peaked in 1967 than a strip mining coal operation was started. This boom, in turn, reached its peak in 1973 when Pacific Power and Light opened a power plant near the town.

During the boom years, Gillette suffered a series of socio-economic problems that have since become a standard of comparison for boom town development.

Ann Ketchin, a private consultant in social conflict problems, who spent many years studying Gillette and other boom towns, says the community was caught in a Catch 22 situation.

"All these people needing all these services came pouring into Gillette and there were no facilities, no infrastructure for them," Ketchin says.

"You can't build this infrastructure without a tax base and by the time you get that tax base from the new people coming in, the problems have already gone too far."

Construction workers, many of them young single men, came pouring into the town. Bored and with nothing to do, they often ran wild. They sent crime statistics soaring and trespassed on neighboring ranches.

Families of construction workers, many of them used to the amenities and entertainment available in big cities, turned to alcohol in their boredom. Wives, torn from familiar surroundings and unable to make new relationships in the transient atmosphere of the trailer camps, left their husbands and the divorce rate climbed.

Gillette found itself facing serious social problems without the facilities to deal with them.

But the problems were not limited to the newcomers. The thousands of outsiders pouring in, during the construction phase of both the oil rigs and the coal mine, disrupted the even tenor of life among long-time residents of Gillette.

Among the hardest-hit were the elderly, says Ketchin.

The shopping areas moved away from the central, older areas where the elderly lived into the bustling new suburbs, leaving the old people isolated from their town and from each other.

Wyodak coal mine east of Gillette.

Such a simple occurrence as the transfer of the post office caused extreme social disruption among the old, says Ketchin.

"When you were used to going down to the post office every day to meet people, to talk to them and to have that social interchange, it had a powerful effect when that daily routine was no longer there."

Gradually, as the tax base increased and as the corporations and various levels of government became more aware of boom town problems, the situation in Gillette improved. In fact, says Ketchin, a recent survey showed most residents of Gillette now judge it a great place to live.

"From Gillette's point of view, the people there now can say, yes, you can get through it, you can survive and have a nice place to live.

"But that's the survivors speaking, not the people who bit the dust during the boom."

However, some residents of Gillette feel the boom was blown out of proportion by journalists and scholars.

"I think there was some sensationalism, that the whole thing was played up by journalists for their own reasons," says rancher Bill Barlow, whose family has lived in the Gillette area for three generations.

"Sure, there were a lot of little things, minor annoyances and there was a cultural shock for the oldtimers, but I, personally, don't know of any real horror stories from that time."

In fact, Barlow believes Gillette's past problems may pale into insignificance beside the threat it is facing now.

That spectre is a proposed coal liquefaction plant. The problem, says Barlow, is that the plant will use tremendous amounts of water in an area where water is scarce.

"We just don't know what that water use will do to the aquifers and to the water table. There's no way of knowing and it's not worth the risk," says Barlow.

Ironically, Barlow is pinning some of his hopes for fighting the new plants on Gillette's thousands of newcomers, the very people brought to the town by its previous booms.

"A lot of them have come to like the life here in Wyoming and we hope they'll help us fight to preserve it," says Barlow.

Unlike Gillette, Colstrip is and always has been a company town. Founded in 1923 by the Northern Pacific Railroad, it was originally the site of a strip mine that provided coal for the company's steam locomotives.

When the railroad switched to diesel in 1959, Colstrip, a town of about 600 people, was sold lock, stock, mine and townsite to Montana Power.

During the sleepy years of the 'sixties, Colstrip virtually closed down until it was only a collection of a dozen houses and less than 100 people.

But today, it has a booming mine and power plant and a population of about 5,000, many of them itinerent construction workers.

What happened in the years between? The energy crunch and the renewed demand for alternate energy sources such as coal.

In 1968, Montana Power, through its wholly-owned subsidiary, Western Energy Co. Ltd., re-opened the Rosebud Mine outside Colstrip to provide fuel for a Billings power plant.

The impact of this was minimal, says Prof. Raymond Gold, a sociologist at the University of Montana. Colstrip remained a place where "if you counted very, very carefully, you could find about 200 people."

But in 1972, the boom really hit when Western Energy Ltd. built Colstrip One and Two, twin 350-megawatt power plants. Since that time the company has also started power plants three and four, scheduled to open in 1985.

Since there was very little in the town in terms of services and housing for workers in 1968, Western Energy decided to rebuild Colstrip from the ground up as a carefully planned, company-designed, owned and operated town.

Because the development of housing, school systems, health facilities and other support systems was not thrust wholly upon the taxpayers of the town as it was in Gillette, Western Energy officials feel their company has been successful in avoiding many of the classic boom town problems.

"Of course, there were undesirable side

Downtown Gillette.

News Record Gillette

effects in the community when the power plants were built," says Bob Amik, Montana Power's director of planning, information and projects.

"There are always going to be problems when you bring in that many people all at once. For example, the crime rate went up in Rosebud County during the construction period but it stayed below the state average, it didn't explode."

The schools were crowded at first, concedes Amik, but the problem was alleviated when the company built temporary classrooms. Now the town has a much larger school and the curriculum has been significantly expanded, he says.

Amik proudly points to the permanent housing the company has built both for its employees and to sell to long-time residents. He talks of the town's 20.4 hectares of parkland, its tennis courts and tot lots.

He says the company, aware of the boredom and lack of recreational activity that caused social problems in other boom towns, quickly built an extensive community centre with a swimming pool, gym and racquetball courts.

The proof of Western Energy's success, says Amik, lies in two crucial figures: Rosebud mine has both the highest per-worker production rate of any mine in the country and the lowest manpower turnover.

However, Gold says Amik's rosy picture of happy employees obscures another, gloomier picture — the effect of the boom on long-term residents of the area.

Gold points out that relations between the company and long-time Colstrip residents are hostile.

"The problem is that the public wasn't informed or consulted about the power plants. The company showed a great deal of insensitivity."

The sudden arrival of a major industrial plant in what had been a rural, ranching area did tremendous damage to the area, says Gold, and the residents were never asked whether or not they wanted those plants.

Amik admits Montana Power may have had "inadequate liaison with the community and that's a cross we still have to bear," but he says the company learned from its mistakes in Colstrip and is consulting residents in communities where it plans future developments.

Regardless of who is responsible, however, the effects of the boom on Colstrip residents have been meticulously recorded in Gold's two-year study of the community between 1973 and 1975.

The study found many classic boom town symptoms, including a sudden increase in taxes "which means these people were having to pay for the infrastructure required to support a development they didn't approve of in the first place."

Ranchers were plagued by trespass problems as construction workers wandered on to their land, scaring animals and damaging environmentally sensitive areas.

Ranchers also found themselves facing a chronic labor shortage as ranch hands left in droves for higher-paying construction jobs.

Gold also found the ranchers were suffering from psychological and social pressures as well.

"Businesses where they were used to getting preferential treatment now put them last in line.

"They ended up suffering from a kind of future shock. They had always had a well established place in the community and now they started to wonder about that. They started to worry about their ability to control their own destiny and about their ability to prevent the takeover of their community and their way of life by outsiders."

Gold believes Colstrip's problems are far from over. The construction of Colstrip Three and Four power plants is expected to boost the population to 8,000 by next year as more and more construction workers pour into the town.

However, Amik thinks the corner has been turned. He feels the town has a good solid infrastructure and that Montana Power is learning how to deal with the residents much more sensitively.

"The company came in here with good intentions and it made some mistakes. But we're doing our best to solve the problems and we feel time will cure the problems that are left."

Norma Ramage is a journalist in Calgary.

Gail Gravelines

Ahead Of The Game

Elkford, B.C., is planning its own boom.

When Carmela Pearson left her Toronto home 11 years ago to join her husband in the new town of Elkford, British Columbia, she soon discovered town life was indeed quieter than her former big-city home. Elkford was then barely a settlement, consisting of two streets of trailers and a dirt road. There were no phones, no television, and even radio was difficult to receive because of the mountains.

But Elkford did offer a stunning view of serene southeastern B.C. wilderness. Looking back on the early years, Pearson marvels at the memory of standing on a mountainside overlooking the wilds. Now, with the current population pushing the 4,000 mark and predictions that some 2,500 more people will arive by 1984, Elkford is no longer the sleepy settlement of years past. District of Elkford alderwoman Pearson today describes the town's growth in glowing terms — "terrific" and "great" — but she adds that in one way she does miss the wilderness-surrounded Elkford of years past.

What makes Elkford, and in fact the surrounding towns of Fernie and Sparwood, development boom towns? Coal. Companies queue for the development permits to extract the area's rich coal resources. With the approval come the mines and the workers, and the inevitable crush for housing and services in the area.

But unlike many other small communities forced to struggle with the overwhelming land and service demands of an energy boom, the District of Elkford is ahead of the game. Instead of merely reacting to the pressures of development as they occur, the town is taking control of its own future by planning ahead.

A concrete example of this planning is its Community Development Plan, formulated in 1978.

Elkford mayor Richard Pinotti says the plan provides a general development strategy that will conceivably provide for the town's land use requirements until its population reaches 14,000. A key element of the plan, adopted by council early in 1980, is the District's annual provision of as many serviced residential lots as the area's major employers (notably Fording Coal) anticipate will be needed the following year. When the requisite number of serviced lots are brought on stream, they're sold to Fording Coal.

The plan also provides for the development of an industrial park at the southernmost end of Elkford, a residential area, and the creation of a town centre featuring commercial properties sharing an alpine theme.

Elkford Ragg

Commercial structures will have sloping metal roofs and log-like exteriors.

The key to Elkford's farsighted planning lies in its history.

Elkford is a creature of Cominco Ltd., whose mining and smelting operations provide the economic lifeblood of both Kimberley and Trail, B.C. The town of Elkford, like the town of Pine Point in the Northwest Territories, was created solely to meet the residential needs of Cominco operations in the area. In the case of Elkford, it was the residential needs of workers of Fording Coal, a Cominco subsidiary, that gave birth to the town 11 years ago. But it wasn't until Elco Mining — a consortium of European energy companies — proposed the construction of another town 16 kilometres north of Elkford, to meet the projected residential needs of their workers, that the B.C. government stepped in.

The ministries of the environment and municipal affairs launched studies of growth in the area and consequently rejected the proposed new town development. But the writing was on the wall. The area would continue to boom — and not only as a result of Fording Coal operations. More mines were slated to begin operation; B.C. Coal's Greenhills project, some nine kilometres north of Elkford, is currently in the construction stages with full mining operations expected by the spring of 1983; Crows Nest Resources' Line Creek project, owned by Shell Ltd., expects to be shipping metallurgical coal (used in steel production) in a year.

The B.C. government, no stranger to the instant development of "company" or one-industry towns, sezied the opportunity to help plan Elkford's growth, making it one of the first B.C. communities to adopt a development scheme.

"Before the plan, Fording did all the development," says Elkford Chamber of Commerce president and Elkford Ragg publisher Alan Elford.

"My house for instance is located on what was supposed to be a quiet cul de sac, that was at one time on the outskirts of town. There's a winding road up to it that would have been fine, except that it is now the major access road — the only one in fact — through the subdivision."

To avoid the waste of building roads and sewer lines that would only have to be replaced to meet increased growth, Elkford adopted a plan of installing sewer lines with a capacity that would meet future population needs. The B.C. government was effective in getting communities to designate arterial roads by making it a condition for receiving provincial road building funds, says Elford.

District of Elkford clerk administrator Bob Miles says the district is now responsible for all land development. With a $5-million Crown land development loan from the B.C. Ministry of Lands, Parks and Housing, some 500 lots in the residential community of Chauncey Ridge were brought on stream this year.

Miles explains that the initial loan is paid back with the proceeds of the lot sales.

Once mine employers specify their lot needs, the District then brings on stream an additional 20 to 30 per cent more to cover the needs of employees of the service sector. The orderly development of lots, and the provision that a lot must be built on within a year of sale, is designed to curtail rampant land dealings and speculation.

The plan is the work of the regional district planners, the town council, and provincial government consultants. Although the professionals aired their ideas at two public hearings, attendance was poor. Mayor Pinotti says only 14 members of Elkford's general population attended the first public hearing, and subsequent public consultations yielded a similar response.

Pinotti says the community shares an "average" concern with political and com-

Installing services for a new subdivision (far left).
Artist's impression of new commercial centre (top).
Finishing touches on new apartment building (below).

munity issues. Some 69 per cent of the voting population turned out at last year's mayoralty elections, while only 30 per cent voted the year before to name only the aldermen. It's a situation shared by most communities, Pinotti says, adding that Elkford is experiencing an increasing feeling of community now that the high population turnover of the early years has eased. Residents are now permanently adopting the community as their home.

"I've been here six years myself, having moved in from Kimberley," Pinotti says. "Before I thought I would be here just for a while, but as I got more and more involved with the community I realized this is home."

To most Elkford residents town growth is seen as a positive thing. Shopping can be done at home rather than in Lethbridge or Calgary. Pinotti says the few residents that do complain about the mushrooming population say they don't want to see the town grow beyond 7,500 people. But the slow-growth group is not organized, and makes no representation at council planning meetings.

Although lauding growth and the community development scheme, Elford says the one criticism he and other small business owners share is the district's reluctance to release commercial development sites at a faster rate. Many business people now operate their shops or services out of their homes, he says. It's a point of contention between the businesses and council.

And there are other wrinkles to be ironed out. Elkford itself may be one step ahead of the boom in providing its new and existing residents with services, but there are still snags in securing services originating from companies or governments outside the community.

Many will not have telephone service until next year. Elford says many of the new residential communities are just now getting hydro and natural gas services. Schools have also been in short supply, with all seniors from Grade 8 up bussed to nearby Sparwood. Elkford is currently building a senior secondary school to house these 200 students. Elford and Pinotti agree the community needs a hospital. And it was only in November, 1981, that Elkford got its own R.C.M.P. detachment.

The flavor of what has been until now a one-industry town will also undergo change with the opening of the two proposed mines in the area. Generally, the influx of workers affiliated with another corporation is seen as a positive move. Elford says it will offer greater economic stability to the town. And he intends to stay.

"I came here from Victoria. And it took three years before I decided this is where I'm staying. It's the snow, you know. I grew up without it. And now I just love it!"

Gail Gravelines is an Edmonton freelance writer

The town that fought to save itself . . .

Few communities look on growth as an enemy.

Fewer still oppose growth and work to prevent it, even before its effects are felt.

The California village of Briones is one of the very few.

In the early 1970s, Briones (some 50 kilometres north of San Diego) was tiny — and aiming to stay that way. But county officials had other plans.

They were proposing a sewer system with a capacity far greater than the village's needs. The villagers got the message: the bigger sewer would be the forerunner of development. How to stop development? Stop the sewer.

And that's what they did. They banded together to thwart the county plan, and also managed to elect four zero-growth candidates to the board of the Community Public Utilities District.

Through these representatives, they designed a sewage system to service the existing population and a projected one per cent annual increase.

There's much more to the Briones story than a fight over a sewer. What happened, as Briones resident Orville Schell documents in his book *The Town That Fought To Save Itself,* was the growth of a vision of community life, and of a community spirit strong enough to defend the vision.

From the concern over the sewer issue there evolved a broader community interest in land use, water, agriculture, development, local control and self-sufficiency. The villagers ran headlong into the conflict of interests between the community and private sector land owners. They clashed with a developer who proposed a condominium resort development on their scenic Pacific Coast, arguing that residents who merely dropped into the community for a retreat would dilute the sense of responsible community spirit cultivated over the years. Instead they suggested building a co-operative farm, available to families on long-term leases, to increase community stability and aid in the goal of self-sufficiency.

BRIGHT LIGHTS! BIG CITY!
Beach Haven
MONEYBUCKS DEVELOPERS
NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO, NO.....

And by making suggestions and entering the public decision-making process, they opened themselves to the criticism they had previously been accustomed to dishing out.

Over a five-year period in the mid-seventies the Briones group created a Community Development Plan by questioning residents and holding public meetings to arrive at a consensus on their shared future. Through perserverence and commitment, most residents had an input into the development plan. Aristotle provides part of the rationale for Briones' struggle:

"How big should a State be? Large cities are never well governed because a large multitude cannot be orderly. A State ought to be large enough to be more or less self-sufficing, but not too large for constitutional government. It ought to be small enough for citizens to know each other's characters, otherwise right will not be done in elections and lawsuits."

Briones residents chose to fight the development of their community by private land owners. Unlike many Alberta communities, they did not face the mammoth development pressures of an energy industry backed by all levels of government.

But some elements in the Briones struggle are common. At one point in the story, Schell writes an open letter to the community, pinpointing a dangerously universal problem:

"The illusion is that there will always be some new place to receive us when we move on. Our country and our world do not have an infinite capacity to absorb our mistakes, our negligence, our unwillingness to deal with problems and our discarded beginnings. This faith in our ability to move on allows us to stand mutely by and watch as a seemingly inevitable process eats away at our present homes. Conservative or radical, we can all identify it. We all talk about it. We all fear it. Even a child knows what's on the list: smog, asphalt, too many cars, crime, drugs, over-priced housing, high taxes, fear, depersonalization, and above all, people losing touch with those other human beings living around them.

"Somehow this process has become so all-pervasive that we have almost educated ourselves to accept it and give in to it — and then, hopefully to move on. We are in constant retreat. We must rid ourselves of the illusion of unspoiled land ahead, from New York, to San Francisco to Briones to Oregon with Canada as the final panacea in the background."

There is no more moving on. Briones is the town that stayed and fought to save itself. And won.

ENVIRONMENT
VIEWS

Student/Teacher Guide: The Human Side of Energy

This guide accompanies *Environment Views* Volume Five, Number One, January February 1982.

Prepared by Susan Washington, environmental education co-ordinator for Alberta Environment, and Doug Ramsay, head of the social studies department at Calgary's Queen Elizabeth Junior/Senior High School.

> *"The time has come to inquire seriously what will happen when our forests are gone, when the coal, oil and the gas are exhausted."*
>
> Theodore Roosevelt 1908

NOTE TO TEACHERS

Energy: we live it, use it, generate it, sell it, manage it. We find it is related to lifestyle, lack of national self-sufficiency, high prices, mobility, economic growth and quality of life.

This issue of *Environment Views* concentrates on the human side of energy and provides a number of topics of interest to teachers of Social Studies and Science. Ideas on ways to use the magazine to examine and extend this topic are found in the General Study Issues section and the section on Research Questions for Further Study.

To be successful in understanding the complexities of the many-faceted human sides of energy, it is suggested that student research accompany this study. Where appropriate, resources pertinent to a topic are listed at the end of that article. General teaching resources are found at the end of the guide.

We hope you find this issue of *Environment Views* particularly relevant and helpful in studying our continuing need for energy and its impact on the human environment.

We welcome your comments, criticism and suggestions on the usefulness and appropriateness of the magazine for the classroom. Please address your concerns to:

Susan Washington
Public Communications Division
Alberta Environment
9820 - 106 Street
Edmonton, Alberta T5K 2J6

RELATIONSHIP TO CURRICULUM

Social Studies:

The Human Side of Energy has both a direct and indirect relationship to the Social Studies curriculum in Grades 9-12. Teachers are encouraged to introduce this important topic in the classroom as part of any of the following topics:

Social Studies 9, Topic A — Selected Market Economics
- Quality of life vs. Materialism

Social Studies 9, Topic C — Industrialization of Canada
- Process of Industrialization vs. the Environment

Social Studies 10, Topic A — Human Rights in Canada
- Individual Rights vs. Needs of Society

Social Studies 20, Topic B - Global Problems
- Energy Consumption vs. Energy Conservation

Social Studies 30, Topic A - Political Systems
- Individual Decision Making vs. Government Control

Science:

The Human Side of Energy is an excellent topic for supplementing a study of the technical side of energy. A specific relationship can be found in the following areas:

Biology 20 Unit II - Environmental Biology
- Man and the Environment
  - — Management of Resources
  - — Political, Social and Economic Factors

Student Projects 10/20/30
(see Research Questions for Further Study for examples).

GENERAL STUDY ISSUES

Social Studies:

- Should Alberta limit energy resource growth?
- How has the process of industrialization (energy development) in Alberta created conflict?
- What impact has technological change had on people in various regions of Alberta?
- What are some of the methods people in Alberta may use to resolve human rights issues?
- What alternatives in the political process are available to citizens in order to influence political and economic decisions in their communities?

Science:

- What examples are available of energy conservation methods in Canada?
- What are the likely future trends of energy use in Alberta, in Canada, in North America?
- How can we maximize the use of current energy sources?

QUESTIONS ON ARTICLES

Never The Same Again

1. What value conflicts can arise in a community between those in favor of increased industrialization of the area and those against?
2. What is the purpose of the Environmental Impact Assessment System?
3. Choose one of the citizen groups mentioned in the article and outline the procedure they followed to get their point of view heard.
4. List the social issues and concerns expressed in the article.
5. As a class participate in a group decision-making exercise, working to achieve concensus on the advantages and disadvantages of a large-scale petro-chemical plant that is to be built in your area.

Environment Views Vol. 1, No. 6 will be of assistance in studying the public's role in decision-making.

The Other Side Of the Boom

1. After reading the article fill in a chart similar to the one below:

Town	Socio-economic Problems	Solutions	New Problems
Gillette			
Colstrip			

Ahead Of The Game

1. Compare Elkford 11 years ago with Elkford today and then explain why Elkford became a "boom town".
2. Why is Elkford unlike many "boom towns"?
3. Describe Elkford's 1978 Community Development Plan.
4. Explain how and why the provincial government became involved in Elkford's development.
5. " . . . But there are still snags." List these snags.

The town that fought to save itself . . .

1. Explain: a) the problem Briones had;
   b) the steps citizens took to stop rapid development.
2. Were the citizens of Briones successful?
3. Could part of Briones' success be attributed to the lack of pressure from the energy industry?

Getting Ready

1. List the companies that have come into Lac La Biche since the late 1970s.
2. " . . . It sems likely that the developments of the past three years are the start of a large wave." Explain by using some examples of expansion at Lac La Biche.
3. Explain how Lac La Biche is trying to take advantage of the employment opportunities in the area.
4. What do people see as the future for Lac La Biche?
5. Outline the potential problems for the village of Alix.
6. What problems are associated with the growth of Alix?
7. How many people will be employed at any one time during the construction of the ethylene plant near Joffre?
8. Are there any major problems perceived for the Joffre-Lacombe area? Why or why not?
9. In summary what is the impact of energy developments likely to be in Alix, Lac La Biche and Lacombe?
10. In general is the future optimistic for these communities?

A Change Of Plan

1. Why did Esso Resources suspend further development at Cold Lake?
2. Outline the changes the suspension made to the real estate market in the area.
3. List four types of businesses that were affected, then explain which were most and least affected by the suspension.
4. What had the communities done to increase services?
5. How do people now feel about the Esso project?
6. In comparison to the Cold Lake project, how did the people of the Dodds-Round Hill region react to a proposed coal-fired generating plant?
7. What are the three major concerns of the local community association?
8. Why was the Shaw Community Association formed?
9. What similarities to the Cold Lake area occurred in Camrose?
10. How would a future proposal for the Dodds-Round Hill area differ from the initial project?
11. What do you think about the people who lost money because these projects did not proceed? Should the government do anything to help them? Why or why not?

Round Hill

A report published by Alberta Environment called *The Only Game in Town: Public Involvement in Cold Lake,* by Brian Plesuk, will be of assistance in studying the Cold Lake Esso project. This report is a collection of opinions by individuals in the communities near Cold Lake who were involved in the E.R.C.B. hearing process.

Conserver Community

1. List the problems that have been created because of the way towns and cities are usually built.
2. Describe the Village Homes project in the following areas:
   a) size;
   b) recreation;
   c) energy conservation measures;
   d) transportation;
   e) landscaping;
   f) lot size and common areas;
   g) agricultural production;
   h) home owners' association.
3. Explain: "The city of Davis seems a likely spot for the Village Homes development to have been created."
4. What other steps (besides the city's Energy Conservation Ordinance) have been taken to encourage energy conservation?
5. Outline the Energy Conservation Ordinance.
6. What factors would have to be considered before a Village Homes project could be constructed where you live?

Further reading:

Corbett, Michael N. *A Better Place to Live — New Designs for Tomorrow's Communities,* Rodale Press, 1981.

Elements, The. *The Davis Experiment: One City's Plan to Save Energy,* Public Resource Centre Books, 1977.

Lang, Reg and Armour, Audrey. *New Directions in Municipal Energy Conservation: the California Experience,* Ontario Ministry of Energy, 1980.

Living Systems Consultants. *Davis Energy Conservation Report — Practical Use of the Sun,* City of Davis, 1977.

A Part Of The Normal Practice

1. Why are the projects at Saskatoon and Fredericton of interest to Alberta Energy and Natural Resources?
2. Explain the purpose of the original conservation home built in Regina.
3. "This (the house in Regina) was not a one-shot deal." Explain this statement in relation to what happened in Saskatoon.
4. Outline all the energy-efficient technology used in the Saskatoon homes.
5. Explain Saskatchewan's "consumer home project".
6. How does the cost of retrofitting compare to that of making new homes energy-efficient?
7. What was the idea behind the federal government's project for "developing conservation practices through citizen participation and initiatives"?
8. Why was Fredericton different from the other two cities in the project?
9. Outline the functions of Fredericton's energy conservation office (including volunteer committees).
10. Why is it considered important to conserve energy in Fredericton?
11. In summary, why are the projects in Saskatoon and Fredericton "rays of hope"?

Three brochures, distributed by Alberta Energy and Natural Resources, will be of assistance in studying energy efficiency and conservation. These are:

Solar Energy Matters — Alberta Energy and Natural Resources (teachers' guide available);

Energy Matters — Alberta Energy and Natural Resources (teachers' guide available);

Keeping the Heat In — Energy, Mines and Resources Canada.

RESEARCH QUESTIONS FOR FURTHER STUDY

Can Students Change School Energy Demand?

There are numerous energy users in a school over which students and teachers have little or no control — floor polishers, electric motors, ventilation fans, boiler room equipment.

But the electrical demands of classrooms, staffrooms, workrooms, gymnasium and halls really do add up. They make up most of the demand placed on the electric meter. It all happens during school hours — from 9 a.m. to 3:30 p.m.

The following list of classroom tips deals with a few of the ways to cut back on electrical demand. Teachers and students can compile an even longer list for their own schools. It is difficult, though, to get a "feeling" for the relative amount of electrical energy that can be saved daily in a school. The electric meter can be checked, but at best it tells little more than how one day's consumption compares to that of the next.

Energy Conservation Tips for the Classroom:

1. Turn off unnecessary lights.
2. Use as few lights as possible on hot days.
3. In the cold months, open the drapes during the day to let the sun in.
4. In the warm months, keep some drapes closed to keep extra sunlight out.
5. Close drapes at night to help prevent heat loss in winter.
6. Seal off drafts around windows and doors.
7. Check the thermostat and keep room temperatures comfortably warm — but not *too* warm — in winter.
8. Bring a sweater to school, to wear when needed.

Use appliances and electrical equipment wisely.
Recycle paper, glass and metal garbage when possible.

Remember to make

- Recycling boxes (near waste paper basket);
- Posters (near thermostat, light switches, waste paper basket);
- Check-list for classroom energy conservation;
- Display of students' energy conservation projects;
- Record of classroom temperatures (daily);
- Record of thermostat setting (daily);
- Bulletin board energy rules list.

And assign a daily student energy monitor.

(Reprinted from Alberta Education's *Energy Conservation Quarterly*, Vol. 1, No. 4, Sept. 1981.)

- What is and what should the role of the Alberta government be in energy development? Answer this question by determining what the government does and what you think the government should or should not do in
  - a) protecting people's investments in boom towns;
  - b) encouraging energy development;
  - c) energy conservation.
- To what extent can citizens participate in decisins affecting their communities? (Use Vol. 1, No. 6 of *Environment Views* as a resource book).
- Design a "Village Home" project for your community (or another community in Alberta if you wish). Take into consideration the Davis project *but* also local economic, social, political and environmental conditions.
- In an essay discuss your opinion of the following statement: The apparent irrelevance and/or lack of success of socio-economic research of energy/environmental problems have been hypothesized as a reason for lack of support by government agencies and/or industry.

ADDITIONAL RESOURCES

- Alberta Energy Van, Alberta Energy and Natural Resources
  A travelling van and resource staff to introduce students to energy conservation. For reservations call Energy Conservation Resource Information Services 427-7003.

The Environmental Cope Kit: A Citizen's Guide to Public Participation. Edmonton: Student Legal Services, 1979

Where is Public Participation Going? An Annotated Bibliography Focussing on the Canadian Experience. Edmonton: Environment Council of Alberta, 1979.

Renewable Society: Oil and Gas: End of an Era (videotape) *ACCESS*, 1979. #208702

Renewable Society: What Energy Crisis? (videotape) *ACCESS*, 1979, #208701

Energy and the Environment: I & II (Grades 9-12), Communications Division, Alberta Environment, 9820 - 106 Street, Edmonton, Alta. T5K 2J6

SEEDS Newsletter, SEEDS Foundation, 406, 10169 - 104 Street, Edmonton, Alta. T5J 1A5

Citizen Action

The game which isn't a game. It's a condensed version of one aspect of life in our society. It's an opportunity to experience—in less than half an hour—some of the successes and failures that you, the citizen, can encounter when you exercise your democratic right—and responsibility—to influence decisions that affect you and your community.

(*Citizen Action* first appeared in *Environment Views* Vol. 1, No. 6).

Introduction

This game reflects some of the events which could occur as a group of citizens becomes involved in planning a project that will affect their environment and community. Real life, of course, is much more complex, but some of the typical frustrations and achievements that you find in a real situation are included.

For example, two important existing agencies, the Environment Council of Alberta (ECA) and the Energy Resources Conservation Board (ERCB), are part of the game.

However, you also have to use your imagination:

- First, you are a member of an organization concerned with environmental or social issues in your community of 15,000. The group is already established with a dozen active members and a total membership of around 60.
- Second, within 150 kilometres of your town is an important natural resource for which development will soon be proposed. This might be a coal, petroleum or iron deposit, a forested area, a hydroelectric dam site, potential agricultural land, or a region of great scenic beauty.
- Third, development of the resource would alter the natural environment and bring sudden growth and change to your community.
- Fourth, your group wants to become involved in the planning for the project so its ideas and concerns will help determine whatever is done.

You can participate in the planning through a variety of ways which include:

- direct negotiation and planning with the developer (route A);
- making a presentation in an ECA public hearing (route B);
- intervening at public hearings of the ERCB (route C).

Regardless of the route you follow you could encounter some common aspects of participation—Media, Politics, the Publicity Campaign and the Last Ditch Effort. Sometimes these help your efforts and sometimes they hinder.

Rules

Two or more may play.

You will need a die and some sort of marker such as a coin or paper clip.

To start the game every player rolls the die. Highest roller starts with the number rolled.

Whenever you land on MEDIA, PUBLICITY CAMPAIGN, POLITICS or LAST DITCH EFFORT leave your marker where it is. Throw again and follow the instruction corresponding to that number (e.g. If you land on MEDIA and throw a '1', you would advance two spaces since '1' says 'Press coverage good for your cause, advance two spaces').

The Winner is the first person to reach 'At Last.' It usually takes about 15-20 minutes to play a game. You must roll the exact number to finish.

Wherever an asterisk (*) appears, consult the 'game terminology' section.

Game Terminology

AT LAST! Your group's objective of participating and affecting the decision-making process has been met.

BOARD OF DIRECTORS In this case the board of directors is a group of individuals that oversees the company (or government agency) and has power to determine general rules and regulations and to overrule any decision made by company management.

CABINET Senior policy-making body of the government composed of 24 members (called ministers) responsible for specific departments and agencies. The cabinet is headed by the Premier and reports to the Legislature.

COMPANY In this game means either a private company or government department which is proposing the development.

DEVELOPER means the same as COMPANY.

ECA (ENVIRONMENT COUNCIL OF ALBERTA) A government agency authorized under the Environment Council Act to conduct reviews of policies and programs of the government and its agencies in matters pertaining to environment conservation, to hold public hearings and prepare reports and recommendations on subjects as determined by the Minister or Lieutenant Governor in Council, and to hold hearings on matters which fall under several acts such as the Clean Air Act, Clean Water Act, Land Surface Conservation and Reclamation Act, Department of Environment Act, and Wilderness Areas Act. The members are appointed by the Lieutenant Governor in Council and report to the Minister of Environment. The Council has its headquarters in Edmonton.

ECA HEARINGS The process of hearing public ideas and responses pertaining to an action or policy related to the environment. Members of the Council hear presentations in local centres. Written submissions are not required but they are accepted. No cross-examination of participants takes place. A report based on the public input is written by the ECA, making recommendations for change or project approval or rejection. This is submitted to the Minister of Environment who makes the final decision.

ERCB (ENERGY RESOURCES CONSERVATION BOARD) A government agency established under the Energy Resources Conservation Act and the regulatory authority of energy resource industries in the province. It administers several energy-related acts including Oil and Gas Conservation Act, Hydro and Electric Energy Act, Coal Conservation Act, and issues regulations and orders pertaining to oil and gas, coal, pipeline and other energy industries. Conducts investigations including public hearings and publishes data and reports relating to the industries. The Board's members are appointed by Order in Council. It is located in Calgary. It is funded by government and industry.

ERCB HEARING An organized process in which response to a proposed energy project is presented to members of the Energy Resources Conservation Board. Twelve written submissions are required from the proponent, various government departments and interveners. Each participant, except government departments, may be cross-examined by all other participants. The process usually occurs in the locality of the proposed project and may last for up to two months. The ERCB then prepares a report based on all information presented, recommending rejection or approval and conditions for approval. The report forms the basis for a cabinet decision on the project.

EXECUTIVE The elected officials of your organization. They are responsible for the operating activities and official representation of your organization.

GOVERNMENT The elected representatives of the ruling political party of the Legislature.

INTERVENER A registered representative (or representatives) of a group or individual in an ERCB hearing, who makes a formal presentation (submission), answers questions and in turn questions other interveners.

LAST DITCH EFFORT The official diplomatic ways of participating have been tried with little or no success. You want immediate attention!

LEGISLATURE (LEGISLATIVE ASSEMBLY) Senior law-making body composed of representatives elected by the people. Composed of 79 members of various political parties. Controls provincial budget. Meets for two sessions per year in Edmonton.

LOCAL AUTHORITIES Elected or appointed municipal officials such as the mayor, councillors, school trustees, and official regulatory bodies such as the regional utilities board, regional planning commission.

MEDIA Radio, television, newspapers and magazines play a very important part in exposing the public to your ideas and activities. The way in which this is done may help or hinder you in your efforts.

MLA (MEMBER OF THE LEGISLATIVE ASSEMBLY) Elected representative from a designated area of Alberta (called a constituency) who sits in the Legislative Assembly.

OTTAWA The Legislature (or Parliament) for the Federal Government, located in Ottawa, made up of 282 elected representatives from across Canada. Alberta has 21 Members of Parliament (MPs).

PUBLIC HEARING The participation process in which a small group such as the ERCB or ECA hears presentations on a specific topic or proposal.

PUBLICITY CAMPAIGN The group is involved in various activities aimed at making it well-known throughout the community. These will include advertising, information talks to various organizations, soliciting funds, and sponsoring social events.

POLITICS The 'politics' activities illustrate various ways the group can achieve action by approaching elected officials.

PRESS COVERAGE Newspaper, magazine, radio or television news reports about your group.

PROPONENT The company or government agency proposing the development project.

SUBMISSION A written statement or report presenting the group's ideas and concerns regarding the proposed project. In the ERCB process a specific number of copies must be submitted before a set deadline, prior to the hearings.

Muriel Stringer

Getting Ready

Three communities soon to be affected by energy developments look ahead.

Downtown Lacombe

Many Alberta communities already feel that small is beautiful. The question they're now grappling with — in the face of proposed energy developments in their midst — is whether bigger is better.

The trade-off between economic aspirations and social change is a tough one. In some cases the problem is compounded when several developments are proposed, each having little individual effect but causing significant disruption in combination.

In the Lac La Biche region, for example, gas plants have been steadily proliferating since the late 1970s. In 1978, Amoco had one plant west of Conklin. Since then, it has constructed a second near Kirby Lake, and Home Oil, Dome Petroleum, Sulpetro, and Total Petroleum have all followed suit.

"More recently, we've seen some ventures into heavy oil, too," adds Dave McArthur, director of regional economic development for the Lac La Biche area. "Amoco and PetroCanada have been exploring up in the north-west part of the Primrose Lake air weapons range, and PetroCanada and Home Oil are both building heavy oil plants up in that part of the country."

Alberta Energy and Natural Resources acquired the gas and oil rights to the Alberta portion of the Primrose Range in 1978, and a systematic exploration program is planned, with the area divided into five sections. Based on an estimated 12 billion barrels of heavy oil in one small part of the first section, it seems likely that the developments of the past three years are the start of a large wave.

In the main, Lac La Biche looks on coming changes with optimism, says Faith Reiner, director of the local Family and Community Support Services of Alberta Social Services and Community Health.

"We do have a housing shortage right now but the town's future planning committee is looking ahead to anticipated needs. Last winter, prices of accommodation and meals in restaurants rose quite noticeably but people generally seem to feel that the benefits in the long term will more than make up for the drawbacks."

A new shopping centre, and hexagonal housing to make the best use of space, are also being discussed, but at the moment the biggest advantage seems to be increased employment opportunities.

"We have a weak economic base," Reiner explains. "Unemployment has always been high, especially in Caslan and Kikino, two Metis communities just north of the town. Our crime rate is very bad, too — murders and other incidents of violence are quite common. We're hoping that getting more people back into the job market will help cut this down."

To increase employment awareness among local people and development companies, the Lac La Biche Regional Employment Association is encouraging hiring of people from the area and is fostering training to suit industry's needs.

Ted Langford, head of the Alberta Vocational College in Lac La Biche, and chairman of the association, says, "Academic upgrading to the Grade 12 level is a real need. At. A.V.C., we're putting on the power engineering program from the Southern Alberta Institute of Technology — that's a good route into the oil and gas business. We're also planning to offer a program in conjunction with the Construction and General Workers' Union."

By 1985, A.V.C. should have new, permanent premises to replace its present trailers. Other buildings scheduled to spring up include a 100-bed hospital and an array of developments in the town's industrial park.

McArthur also points to the completion of a partially solar-heated Provincial Building, and a Treasury Branch expansion.

Demands on the facilities of Lac La Biche are growing much more rapidly than its actual population increases would suggest.

Alberta Government Photo

T m B[illegible]

Lac La Biche (top).
Alix (below).

To say that it serves only the 2,000 people within the town limits would be misleading. McArthur reckons there are from 3,000 to 4,000 more in the bush north of the town, many of whom rely on services such as those provided through Reiner's office.

Family and Community Support Services is even now inadequately staffed, with only one of the seven employees in the Lac La Biche branch having a suitable university degree. Reiner believes it will be difficult to attract enough well-qualified people to meet the expected increase in demand.

Overall, however, the changes will be welcome, and, as Reiner puts it, "Nobody's talking about a boom. We're looking at planned, gradual growth, with probably the heavy oil industry giving us the most stable economy in the long run."

Nor are the villagers in Alix showing extreme reactions to Fording Coal's proposal for open-pit mining in the vicinity.

"It's only at the preliminary disclosure stage so far," cautions Fording's project manager, Stu Hunter. "We submitted our disclosure in early summer, 1981, but we don't expect to hear anything till early 1982. If we go on, the other stages of approval will take about three years and the project proper will get under way in 1986."

Over the next 30 to 40 years, the mining operation would encompass 4,800 hectares.

"But at any given time, only 800 hectares would be out of agricultural production — that's 300 actually being mined and the balance of the 2,000 either being prestripped or revegetated."

A major feature of the proposed project is the 2,000-megawatt power station just south of Alix to convert the coal to electrical energy for transmission to the United States for the first 15 to 20 years of the plant's operation. Construction of the station would take about five years and to date Fording has no detailed plans for coping with the large number of construction workers needed.

Hunter estimates operating the plant will require about 200 people, and another 300 will be employed in the mine. Fording's socio-economic planners calculate that, including workers' families, some 1,300 people will be added to the area so that, although not all will choose to live in Alix, the population of the village will probably be at least doubled.

Already, despite the uncertain nature of the venture and the length of warning time, residents are very much aware of potential problems. Municipal administrator Eve Keates lists some of their concerns.

"We're very worried about the effects on our water supply. It's not just that more people will be drawing on it. The mining itself could reduce the quality and quantity of water the town gets from its four wells. We feel that Fording should pay if there's a need to upgrade the water but as yet they're just saying they'll do 'more research' after the preliminary disclosure is passed."

Housing in Alix has already been considered and a 200-lot subdivision is slated for development in three stages. Stage 1, with 60 sites, is now paved and fully serviced, and

Tim Belec

Eve Keates

Stage 3 is intended to include a school.

At the moment, Alix has no doctor or drug store, but the hospital committee is tentatively looking at a 10-bed unit with a senior citizens' lodge attached.

"We're surveying the community to find out what people want," says committee member Bob Smith. "The hospital would be a big bonus for us, though. We've been trying to get a lodge for the past four years."

Local business is also likely to get a shot in the arm. According to Fording's estimates, 127 new shops and services will be needed to support the coal development.

But there's a price tag to progress and the residents of Alix are concerned that crime will be on the upswing.

"We've only Bashaw RCMP to help us," explains Keates. "And that's just five men to cover 900 square miles. We've talked to Fording about getting their help for more policing but they've made no commitment yet. Again, they say they'd have to look into the company's policies."

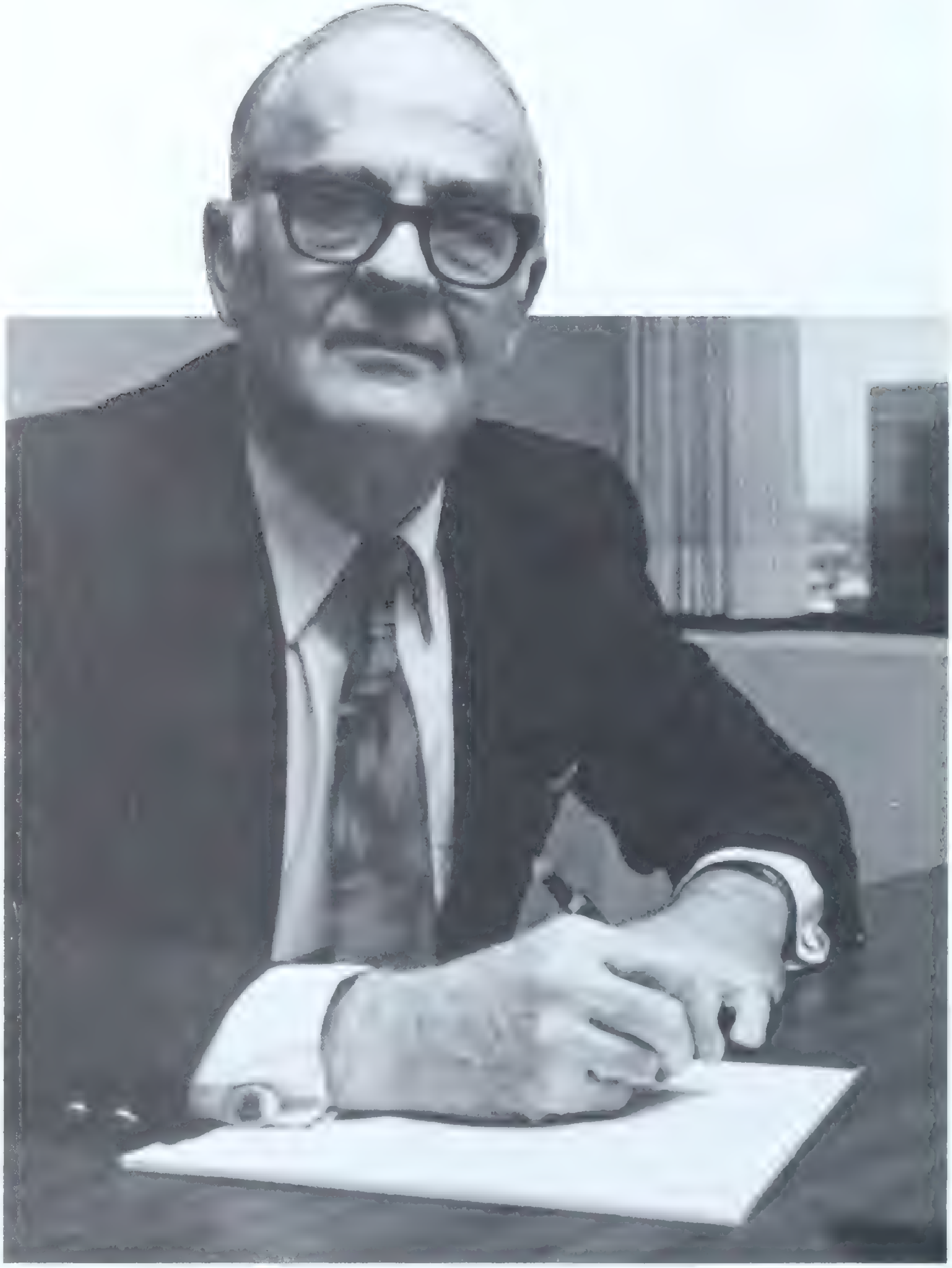
For some, the cost of development may be even higher and may in fact mean a loss of livelihood. Farmers in the area, fearing the destruction of their land, have formed the Heatburg Organization to Protect the Environment in opposition to Fording's project. For the inhabitants of Alix itself, this poses something of a dilemma since they apparently stand to gain more than their rural counterparts if the proposal goes through.

As Keates sums up, "We're mostly positive about Fording coming in. Their staff have responded pretty openly to our questions and we could benefit a good deal from the operation. But we don't want to see our country neighbors suffer. It's not just that they help to support our local businesses—they're a valuable part of the community in their help with sports, church and volunteer activities."

For Alix, coping with rapid growth is a new challenge. But Lacombe has already some experience which may stand it in good stead during the next few years.

In 1979, Alberta Gas Ethylene opened the first unit of its plant near Joffre. By 1981, it was the largest producer of ethylene in Canada and now has approval to add two extra units, one to go on stream in 1984 and the other a year later. In 1984, Enesco Chem Ltd. will open its polyethylene plant also on the Joffre site, and cabinet approval was given in early December, 1981 for Union

Charlene Currie



Miles Russell

Carbide's ethylene glycol plant 11 kilometres south of Lacombe.

Charlene Currie, an associate planner with the Red Deer Regional Planning Commission, points out that these developments will cause two distinct increases in population — through an influx of construction workers, and through staffing of the plants themselves.

"We've worked out that there will be between 2,500 and 4,000 people added to the area at any given time during the construction period. The actual number depends on the degree of overlap of the different projects."

Accommodation during this phase will be largely in camps which will be "as self-contained as possible," according to Miles Russell, manager of business and resource development for Union Carbide. Inevitably, however, Lacombe will feel some impact on its medical and recreational facilities.

Later, too, housing for plant employees will be the town's problem rather than the company's. Union Carbide has no plans to build houses for its employees but John Olthuis, mayor of Lacombe, feels the community can cope.

"Alberta Gas Ethylene didn't have a bad effect on us with its first project. In any case, we already have new subdivisions planned. We won't even need to do any annexation."

Upgrading the water system to the tune of $1.5 million this year is only part of Lacombe's long-range water and sewer improvement scheme.

"We've also begun planning a sanitary landfill project which we hope to get going with the county this coming year. That may help our neighbors in Alix, too."

A new hospital with a nursing home and an outpatients' department is on the drawing boards and, although no expansion of the school system seems necessary in the immediate future, daycare provisions are being reviewed.

Liaison between Union Carbide and the local Chamber of Commerce is active, says Russell. He explains that the company has given the town a list of its projected needs for support businesses such as welding, printing and tool shops.

In each small town, the impact of energy development is likely to differ, partly because of the differences in character of the existing communities but also because of the nature and size of the project in relation to the population base. Alix, with less than 900 people, is in danger of being overwhelmed by the anticipated increase; Lac La Biche is less closely associated with the newcomers, who, though signigicant in number, are scattered throughout the area to the north; and Lacombe, with a population of 5,000, can fairly easily absorb the relatively small number of people to be added.

In all three communities, communication with the energy entrepreneurs seems to be good, and there's an active recognition that far-sighted planning is crucial. There is, however, an inherent element of conflict as old meets new. And, while the town may welcome change with more or less open arms, there is an underlying note of caution in Miles Russell's comment that "it's up to the community to make a marriage between its aspirations and our needs."

Muriel Stringer is an Edmonton freelance writer.

A Change Of Plan

It may turn high hopes to hardship.

Energy developments that proceed as planned usually have positive economic benefits for host communities.

But what if a plan is shelved? However unwelcome it may have been there are likely to be serious financial and social consequences. And even if there is some expectation that the project will be revived, the attitude towards it will almost certainly be changed.

The recent suspension of the Esso heavy oil development in the Cold Lake area, for example, meant a set-back to four years of gearing up for growth, based on the expectation that the plant would be operational by the early to mid-1980s.

Local residents were told in November, 1977, of Esso's intention to build a major facility near Cold Lake.

"The project went fairly smoothly through the various approval stages, such as the ERCB hearings during 1978 to 1980," explains Glenn Rainbird, manager of the public affairs division of Esso Resources. "During the whole period, we had a very close contact with the people in that part of the province. Then in October, 1980, we re-evaluated the operation, especially in the light of the new National Energy Program. It no longer looked like an economic prospect for us so on July 8 of the following year, we announced we were suspending further development."

Despite the disappointment all round, Glenn Rainbird says it isn't a four-year flop and believes that the residents are still enthusiastic.

Rural and urban Cold Lake

Feelings, however, seem to be mixed, and the effects of the relegation of the project to a back burner are especially marked in the real estate market and the business community.

Ann Lewis, president of the Cold Lake and District Real Estate Board, states, "Prices just skyrocketed four years ago but nothing is selling now. Between January and September this year, real estate sales were about $22 million. In October, only $300,000 worth was sold — that's about a sixth of the monthly average for the rest of the year."

Since Esso's first announcement, around 400 new houses have been built in Cold Lake and Grand Centre — but right now about 80 homes are empty. With a total population of 5,000 in the two towns, Lewis thinks this is a high vacancy rate.

"It can't all be blamed on Esso not coming through, though. High mortgage rates are affecting real estate sales everywhere."

Bonnyville, according to major William Slawuta, also had an upsurge in construction, with over $18 million in building permits granted two years ago. This year, however, only $2 million have been granted and he believes that the construction business is the sector hurt most.

"Construction people are moving out. All the same nobody's talking about gloom and disaster. There's still a lot of willingness to help make the project go."

Grand Centre's mayor, Neil Kowal, isn't quite so optimistic, though.

"This whole affair has driven real estate prices to the point where people just can't afford commercial properties. The final crunch will be this winter. Some people are going to go under if there isn't a commitment by Esso to get going again in the spring. Most of us aren't holding out any great hopes but we're not in the depths of despair, either — we're just being more cautious and not counting on anything."

Time seems to be a crucial factor for survival, especially in the business commun-

ity. Dennis Fagnan, president of the Bonnyville Chamber of Commerce, lists four types of businesses affected: those established before 1977; those expanding in an established line; those established but branching into new lines; and new ventures. Least affected have been the first category, and worst the new speciality stores and services such as hobby shops and catering companies.

"It wasn't just the lack of a big enough market that put people out of business. Commercial taxes went way up in 1980. Before then, about 25 per cent of the town's total taxes came from commercial properties. Now it's closer to 50 per cent."

Upgrading the town's services in readiness for rapid population increase has inevitably put some strain on the tax dollars of the small communities. Myron Goyan, town administrator for Cold Lake, believes that some towns have overextended themselves by attempting large-scale projects they can't really support, such as a regional water supply system.

"Everything's geared to more development. In Cold Lake, we've built a new water treatment plant, added to the fire hall, and renovated the town office, for instance. But it's a catch-up game — we need the population growth to come up to the level of services now."

Bonnyville, too, has put dollars into improving its water and sewage systems, although as town administrator Olga Cross points out, many of the changes were coming anyway and simply received an impetus as a result of Esso's proposal. Others, such as Bonnyville's $13 million hospital now in the planning stages, were initiated to meet expected demands.

Waiting is very much the name of the game, and for some, the wait may be too long. Even with an early go-ahead, Esso expects to need at least a year and a half to reach the point it was at in July last year. And it's unlikely that a revived project will be received with the same degree of trust and enthusiasm.

Goyan sums up the present attitude as "seeing is believing. We've been hearing the same story for three years now. We want to see some real action before we make any more definite commitments."

Louis Stefura (left), William Stensrod and new Roundhill-Dodds Agriculture Protection Association chairman, Jim [illegible]

But the prospect of the Cold Lake scheme is still largely regarded with favor and there is little opposition to Esso's proposal. Another plan that failed, however, did so because of vigorous resistance at the community level.

In the summer of 1974, TransAlta Utilities (then Calgary Power) announced its intention to build a 2,125-megawatt coal-fired generating plant in the Dodds-Round Hill region just south of Edmonton. Farmers in the area immediately organized themselves into the Round Hill-Dodds Agriculture Protective Association. Fred Gothridge, association chairman at that time, says the main concerns were the loss of agricultural land due to strip mining, adverse affects on the water supply, and air pollution from the plant itself.

A two-year battle culminated in the provincial government's decision in July, 1976, to reject TransAlta's proposal. But the aftermath of the conflict remains and the possibility of a renewed fight still lurks in the background.

During the early wrangling, a second group, the Shaw Community Association, was formed, essentially in favor of the project.

One member, Louis Stefura, explains: "I think a lot of us would have worked for TransAlta. My own farm is rented out and I work in town. Most of my family have had to leave the area too, to find work. We looked on this development as maybe a chance to bring our young people back."

William Stensrod, another of the Shaw group, admits that he would simply have sold out and left for an early retirement but clearly the Dodds Round-Hill group had their roots deep in the land. This set neighbor against neighbor; even five years later, relations are still strained, according to Gothridge.

"We used to be so friendly. Now we just speak in passing. I sure wish it wasn't so."

Townspeople, too, felt the impact of the coming change, especially on real estate development. Camrose, for example, with a normal growth rate of three to four per cent, experienced a tremendous upsurge of growth and had a great influx of developers. The number of houses on the market doubled in

Fred Gothridge (right) with neighbor.

the year following the announcement of TransAlta's plans, and contractors in the town tripled. A slump followed; the boom left in its wake problems which created some hardship over the subsequent three years. Some housing projects remained empty although prices did not fall. Local contractors were, says one town official, less adversely affected than the "carpetbaggers" since the local people tended to rely on established tradesmen.

For the Dodds-Round Hill people, the worst seems to be over, at least for the moment, but there is the possibility of revival of TransAlta's plans in the mid 1980s. The company is now looking for alternative sites but is maintaining contact with both associations and is continuing with its revegetation experiments. Future attempts to encroach on the area would, however, be done very differently, says John Railton, manager of environmental planning for TransAlta.

"We'd have a far more intensive public participation program. We've a lot more experience in dealing with this type of situation now and would have, for example, a mine project steering committee."

Gothridge reckons his group has had some useful experience, too, and states bluntly, "If it starts over again, we'd put up the same kind of fight. The only difference is we'd know the ropes a little bit better."

Tim Belec

Section Three

Conserver Community

It's an old-style neighborhood — with some new values.

Imagine a suburban housing development which is designed to conserve energy, water, and productive agricultural land.

Picture quiet streets lined with solar-heated homes, where bicycles and pedestrians have priority over cars, where natural surface drainage replenishes soil moisture and creates attractive ponds, and where neighborhood residents meet to tend their local garden plots which provide abundant fruit and vegetables for table and for sale.

The development is in a city which requires safe bicycle paths and energy-efficient housing, and which recycles the waste materials of residents.

A utopian fantasy? An environmentalist's pipedream? No — this is Village Homes, a housing development in Davis, California.

Mike and Judy Corbett are the designers and developers chiefly responsible for creating Village Homes. They shared their experiences and opinions at the Human Side of Energy conference in Edmonton during August. Mike explained the Village Homes community in his presentation:

"Village Homes is our concept of a planned neighborhood. We began construction of this 70-acre (28-hectare) neighborhood in 1975 and it is now almost complete.

"The development incorporates many features which reduce its residents' energy use while, at the same time, it reintroduces the kind of neighborhood community that existed prior to the evolution of urban sprawl, the kind of community that inherently provided safety and security to its members and was a passive element in the support of the family structure and the social maturation of its members."

Within the Village Homes site there are 230 residential units (210 of these are single-family houses), as well as five hectares (12 acres) of agricultural land, a recreation centre and a small commercial centre.

The community grew from the Corbetts' fundamental concern with the way towns and cities are built in North America today.

It is not hard to identify the problems which seem to be linked to the places in which we live and work. Productive agricultural land disappears to be replaced by pavement and vast expanses of seldom-used front lawns. Wide streets are convenient for speeding car traffic but unsafe for pedestrians and cyclists, and keep neighbors separated from each other.

Identical rows of houses are thrown up with little thought to the amount of energy which will be required to heat them, and less concern for the energy consumption needed to transport residents to shopping facilities or to a place of employment.

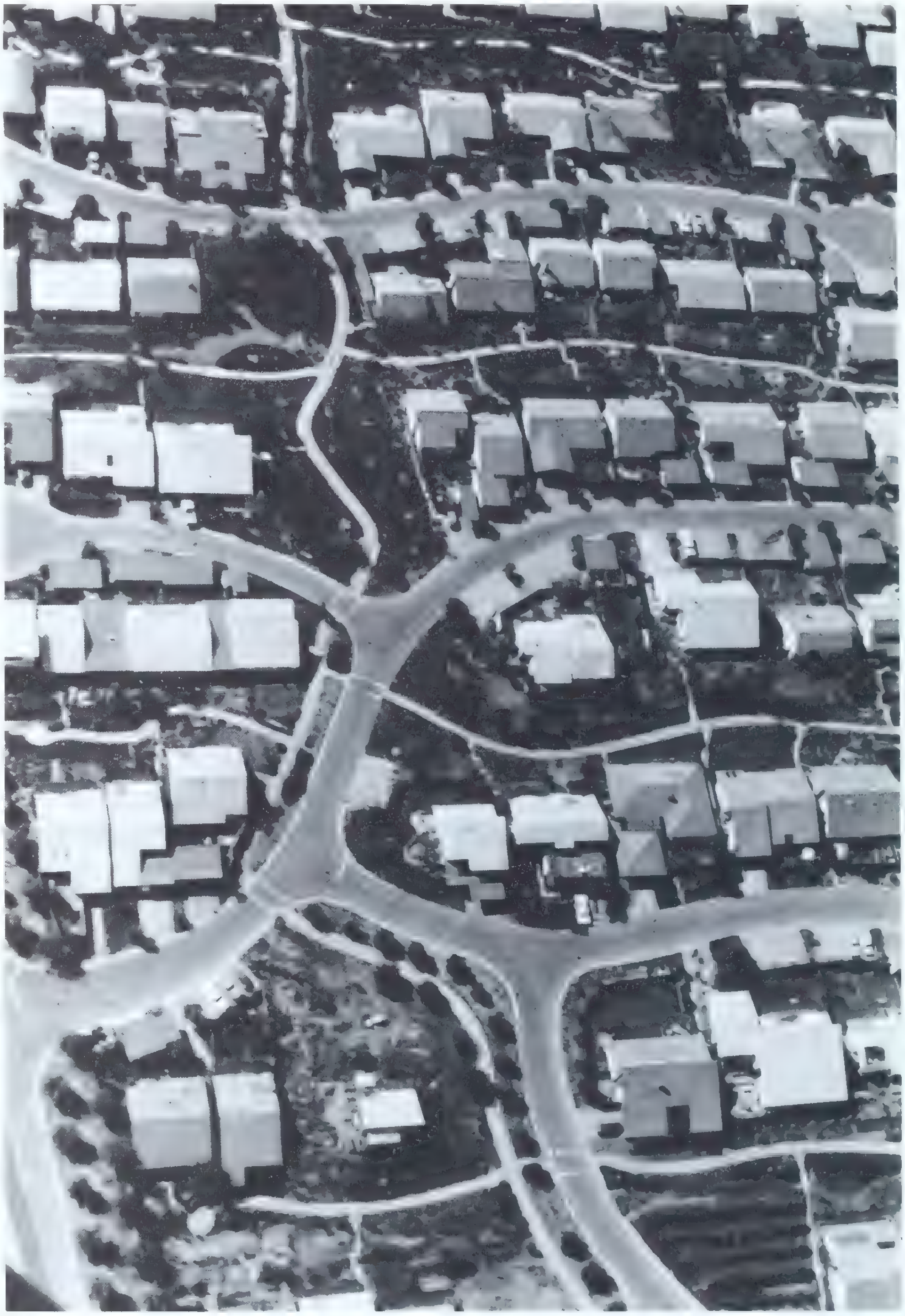
Social problems are also evident in most communities — vandalism, burglary, and petty crime are increasing in residential areas because few people seem to take interest in their neighborhood.

Yet we live in an era of increasingly costly resources, with signs all around us of the problems still to come. High quality food-producing lands are becoming more scarce. Competing demands for water use in our dry western climate are squeezing available supplies. And in our scramble to develop more energy sources we are spending huge amounts of money on open-pit mines to rip coal and oil sands from the earth's surface. Faced with these prospects, the Corbetts argue, it is more than reasonable to try to build better communities and reduce our need for these resources in the first place.

They set about to do just that in the Village Homes development. All homes in the community have been designed and oriented to use passive solar heating, which supplies 50 to 85 per cent of each home's space heating needs. Solar heating for domestic hot water is used in most houses. The orientation of lots and the subdivision's building restrictions ensure that no future development will shade any resident's solar collectors. The community recreation facility and the local office/retail building are also solar heated.

To discourage use of cars, streets are narrow, dead-end cul-de-sacs. Separate direct pedestrian and bicycle pathways ensure that it is easier to walk to community shopping and recreation centres than to drive. By keeping the streets narrow and well-shaded, the build-up of heat from exposed pavement in the summer is also reduced, so there is less need for air conditioning. Narrow streets are less expensive to build, and require less asphalt.

There is not need to pump storm runoff water. Much of the runoff percolates right



Michael Corbett

into the soil on the deliberately low-gradient surface around each home. A series of runoff channels throughout the Village Homes development provides interesting landscape features and children's play areas such as ponds, small waterfalls and brooks. The entire site drains into a sandy creekbed.

Each home has a small front yard which is fenced for privacy. On the other side of the house is a common green space, shared by a cluster of eight homes. The group of eight residents decides how they wish to develop their common area, which is about .13 hectares (1/3 acre). They may have a fire-pit, or volleyball court or a children's play structure. The residents are collectively responsible for maintenance, but any homeowner can choose not to devote time to maintenance responsibilities and contribute a fee which helps to cover costs of a gardener instead.

As Mike Corbett puts it, "Common areas provide immediate neighbors with a place and a reason to interact.

"The clustering of homes around this semi-private open-space allows residents a chance to maintain constant surveillance of their common area and their neighbors' homes. The homes of the Village have almost never suffered from burglaries, and the common areas have never been vandalized."

An interesting feature of Village Homes is a greenbelt in active agricultural production, part of which forms the boundary of the neighborhood. Neighborhood residents and paid gardeners tend the agricultural lands, which can produce most of the fruits and vegetables needed by residents and reduces the need for food transportation, refrigeration, and packaging.

Many residents also have their own small vegetable plots. The entire community has become involved in harvesting and distributing produce, with neighborhood children receiving much of the proceeds from their efforts in picking fruit, nuts and vegetables, and selling the surplus.

But Village Homes is much more than a unique collection of design concepts. Throughout the design, building and marketing phases of the development, the Corbetts sought the active participation of prospective buyers and future residents.

Although a master plan for the site was prepared, details of individual building design and landscaping were worked out after interviews and consultation with lot buyers. It is a measure of the acceptance of this approach that residents have become eagerly involved in designing and building most of the community facilities such as bike paths, playgrounds, swimming pools, fences, and footbridges.

As is common practice in U.S. subdivision developments, a Homeowners' Association was legally established by the developer to supervise and operate community facilities. Community residents contribute to the operation of the association through dues or assessments and have a vote in major decisions or executive elections.

But the Village Homes Homeowners' Association is very different from most. In addition to operating the recreation centre and solar-heated swimming pool, it supervises the community's agricultural enterprises and owns the neighborhood commercial centre. The residents themselves can then determine the type of commercial enterprises they wish to service the community and the Association earns a monthly income of $700 to $800 from leasing this space. The Homeowners' Association also owns and operates the neighborhood's 20-unit apartment building.

The City of Davis seems a likely spot for

the Village Homes development to have been created. It is a city of 35,000 people, located in the northern part of California's dry Central Valley. Its character is strongly affected by the presence of the Davis campus of the University of California, including agriculture, veterinary, and medical schools along with a liberal arts college.

In the late 1960s and early 1970s a city council concerned about rapid growth began to emphasize the importance of community planning. Based on Davis residents' responses to questionnaire surveys, a new general plan was drawn up in 1972. This plan placed special emphasis on conservation of natural resources, including land, water and energy, even before the OPEC price increases of 1973.

With an established expertise in building for the Central Valley climate, a research team at the University of California, Davis, was given the task of analyzing energy consumption in different housing types as a function of building design, orientation, landscaping and occupant habits. Their findings led to the Davis Energy Conservation Ordinance, which was passed by the City Council in 1975 after six months of public hearings and review.

The Energy Conservation Ordinance requires all new housing to be built to minimum energy efficient standards to require less heating in winter and less cooling in summer. Required techniques for achieving the maximum permissible energy consumption levels established by the City include mandatory weatherstripping, insulation of the building shell, pipe and duct insulation, limitations on use of glass, and requirements for shading window areas. Builders are required to meet city standards in these areas before building permits for new homes are issued. Builders can demonstrate compliance either by meeting a series of prescribed minimum construction standards, or by performing a series of calculations to prove that alternative or innovative designs can still meet the maximum energy consumption levels.

Davis' small size, community commitment and research support from the university all played an important part in helping with this pioneering initiative. Although some local contractors were initially opposed

Michael Corbett

to Davis' regulatory approach, Mike Corbett's Village Homes development, which was under construction as the new building ordinance was being proposed, clearly showed that varied and interesting home designs could meet or exceed the new energy requirement.

Since the introduction of the city's Energy Conservation Ordinance, a number of other steps have been taken to encourage energy conservation. Bicycles have always been a popular method of transportation in Davis, where the total number of bicycles is as large as the number of people who are capable of riding. The city's climate, flat terrain and large student population have encouraged bicycle ridership, and the city has taken steps to ensure that bicycle traffic can be safely accommodated and planned. Other energy conservation measures adopted in Davis include encouraging the use of solar clothes dryers (clotheslines!), landscaping requirements to shade new commercial developments and all parking lots, demonstrating new solar home designs, reducing street widths and improving pedestrian and transit facilities, as well as ensuring municipal operations themselves are energy efficient.

Can the resource-conserving design of Village Homes be reproduced elsewhere? The Corbetts say it can. The design must reflect local climate and conditions, but Mike Corbett claims the principles which are used in designing and building Village Homes are directly applicable to development in any community — new or existing.

He has written a book on this subject, and the title aptly reflects his perspective on the significance of the Village Homes example. The book is called *A Better Place to Live — New Designs for Tomorrow's Communities.*

Stephen Tyler is a senior conservation officer with Alberta Energy and Natural Resources.

Cheryl Cohen

A Part Of The Normal Practice

Two successful energy conservation projects spread a hopeful message.

Saskatoon, Sask., and Fredericton, N.B., are giving hope to Alberta.

More precisely, it is two successful energy conservation projects in the easterly cities that are warming the hearts of conservation officials in this province.

The Fredericton project is a general, municipal energy conservation program. The Saskatoon one centres on energy-efficient housing.

Together, the projects are of interest to Alberta Energy and Natural Resources for two reasons, says Stephen Tyler, senior conservation officer:

"One, they've been successful . . . and others haven't; and two, they've managed to create a situation where energy conservation has become a part of the normal practice."

The Saskatoon story traces its roots back to the late '70s, when the Saskatchewan government, on the basis of research by the National Research Council and the Saskatchewan Research Council, built and monitored a home it called the Saskatchewan Conservation House in Regina.

This was a show home of sorts — it allowed scientists to research and demonstrate modern energy-efficient techniques that could be applied to residential homes.

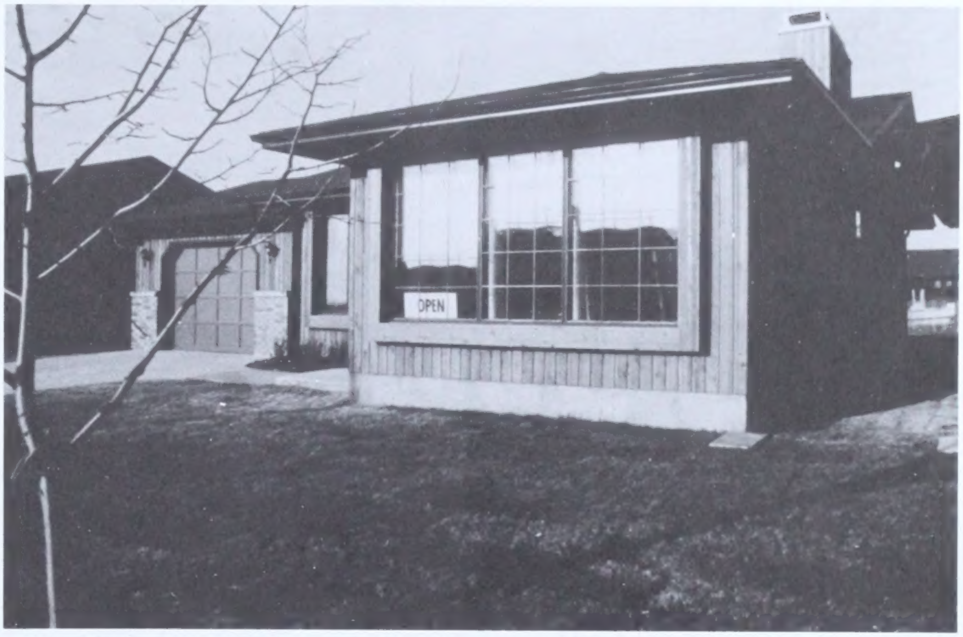
The house was completed in 1978. By the time it was closed to the public last fall, 37,000 people had toured the building.

Response to the project was "tremendous," recalls Michael Shaw, assistant director of the provincial Office of Energy Conservation, attached to the Department of Mineral Resources, in Regina.

The house drew visitors not only from Saskatchewan, but also a "large number" from Europe and a "tremendous number" from the United States.

This was not a one-shot deal. Saskatchewan has a commitment to energy conservation, Shaw notes, and two other energy-efficiency projects were launched, one of which was the "energy showcase project" that has aroused interest in Edmonton.

Thirteen builders were contracted to build 14 energy-efficient homes in a single block of a new Saskatoon subdivision.



The Regina house had proved to be "a little too advanced" architecturally, Shaw says. Many people found it ugly. So, in Saskatoon, the government decided to leave design, as well as ownership and marketing, in the hands of the builders, who, it felt, would know more about public feelings in that area.

The government hoped to expand builders' knowledge of energy-efficiency techniques. So builders were given an overall energy performance standard as their design objective — how they met it was up to them.

The builders also had to finance the construction. They received $7,000 each in funding, and were expected to recover costs on the sale of the houses. Government funding of the project was split between Ottawa and Saskatchewan.

The 14 houses cost an average of $5,500 (or six to nine-per-cent) more to build because they were energy efficient, Shaw says.

They were built in 1980 and went on display for 2½ months. All are now occupied; one is leased by the National Research Council. Extensive monitoring is still being conducted.

What exactly lies within the walls of these special houses?

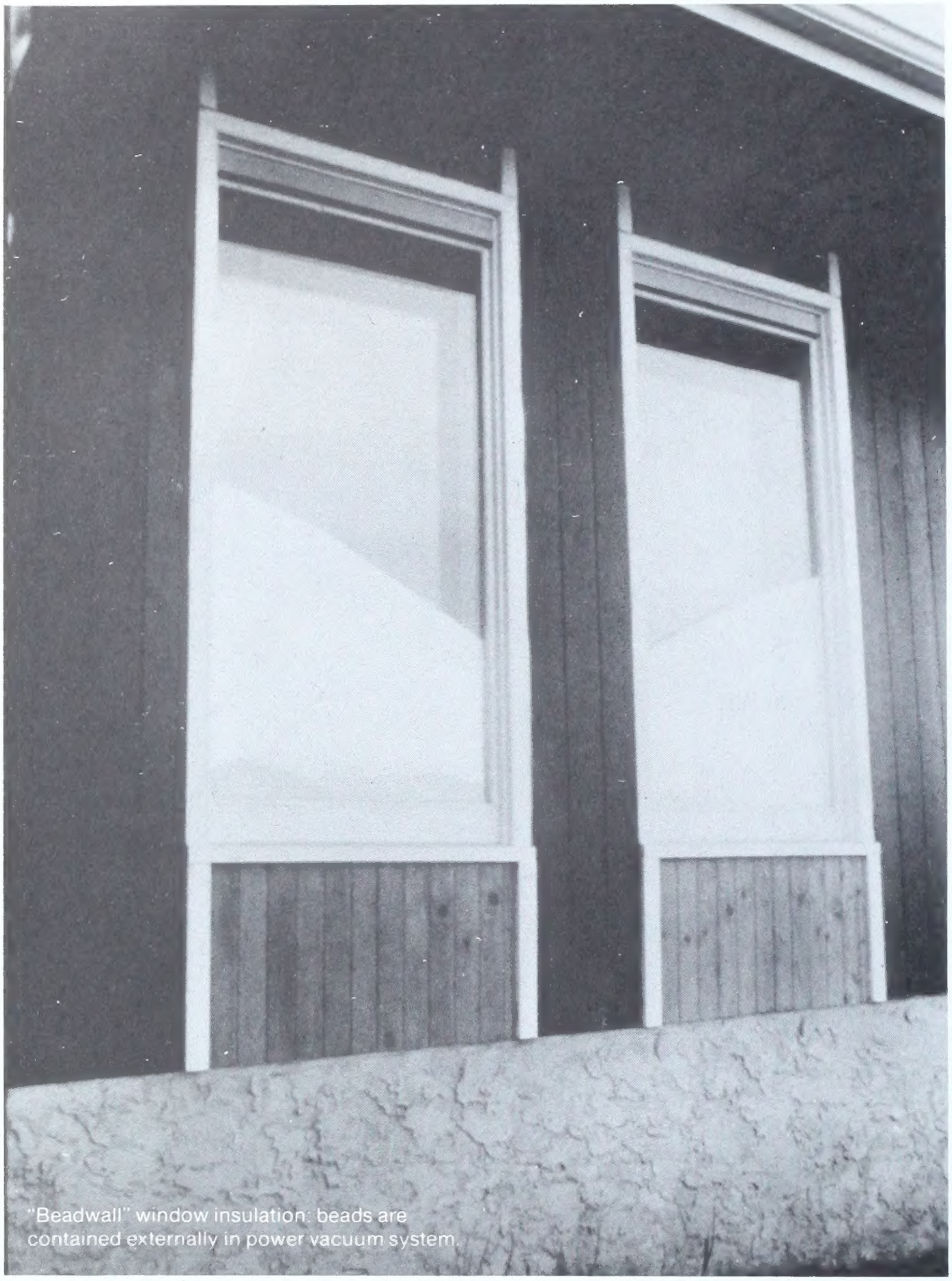
Nothing fancy, Shaw says. "The energy-efficient technology is relatively simple." But the houses used 80 per cent less energy for space heating than standard techniques.

Shaw lists four areas of special emphasis:

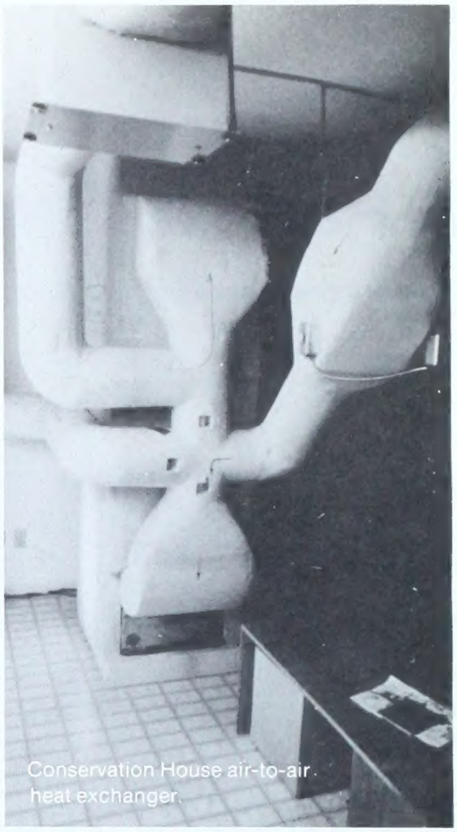
- Each house is a thermally efficient structure — it has an increased level of insulation.
- Attention is given to the air-vapor barrier — "we want an air-tight envelope." The ventilation system is controlled and heat is recovered through a heat exchanger.
- There is proper sizing of furnaces and increased efficiency of appliances.
- Proper use is made of passive solar potential, i.e. heat loss through windows is reduced by properly sizing south-facing glass.

In the 2½ months the homes were on show, about 50,000 people paid a visit, Shaw says. This, in a city with a population of 150,000.

Shaw says the project prompted Saskatchewan's July 1, 1981, implementation of an incentive program providing $3,000 interest-free loans, repayable over 10 years, to



"Beadwall" window insulation: beads are contained externally in power vacuum system.



Conservation House air-to-air heat exchanger.

Saskatchewan residents who build energy-efficient homes.

By early December, the government had received 325 applications under the program. On top of this, Shaw says, "I believe in Saskatchewan there are about 400 to 500 energy-efficient houses — probably more than in the rest of Canada combined."

The other project stemming from the Saskatchewan Conservation House is termed the "consumer home project."

Just completed, it involved the province's buying and "retrofitting" (making energy-efficient) six ordinary homes across Saskatchewan. Retrofitting to the tune of $2,200 in a Moose Jaw home led to a 50-per-cent drop in space energy requirements, Shaw says, while up to $14,000 was spent retrofitting one of the other houses.

An important finding was that it's impossible to generalize about existing homes and results of retrofitting, Shaw says. And costs were twice as much — in both labor and materials — as those for making a new home energy-efficient from the start.

"It's easier to work with new houses and you're able to improve the technology," Shaw adds.

"But we have a vast stock of homes that are vastly energy-inefficient. It's estimated that 80 per cent of the homes Canada will need by the year 2000 are built today. The existing-home project has shown us problems that have to be solved."

Meanwhile, 4,000 kilometres east of Saskatoon, energy-efficient housing is just a part of the energy conservation program embarked on recently by the city of Fredericton, population 50,000.

The initial thrust for this program was, like the Saskatoon one, provided by a government, but in this case the federal government.

In August, 1979, Fredericton was one of three cities the federal government had selected to take part in an energy conservation project.

The project was called "developing conservation practices through citizen participation and initiatives." The idea was to raise people's awareness about energy conservation.

The project lasted 10 months and, at the end, died a natural death in Vernon, B.C., and Richmond Hill, Ont., also chosen to participate.

But not in Fredericton.

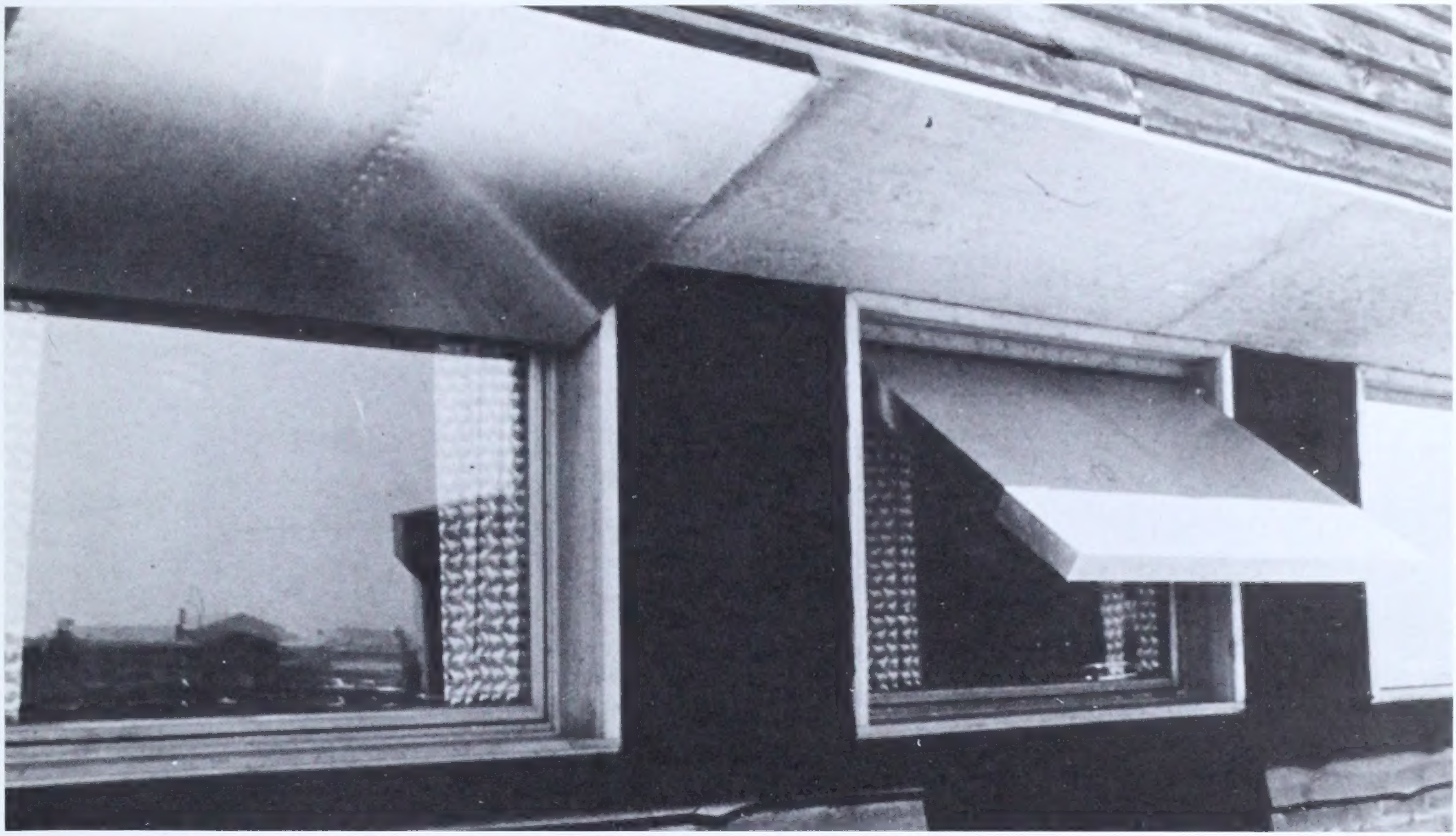
The New Brunswick capital now boasts its own energy conservation office and its own community energy conservation co-ordinator in the form of Louise Landry.

In the federal project, a steering committee was appointed and a handful of committees developed to tackle such areas as promotion, monitoring, energy management of institutional and public buildings, recycling and schools.

In Fredericton, "we had a very strong steering committee," Landry says; when the end of the federal project loomed, the committee worked out a plan to keep the project going in Fredericton.

The task group got together and helped produce a report for city council on how valuable the project had been. Council agreed to take on the fiscal responsibility for a continued energy conservation program.

So Landry was appointed to her current post. The city pays for her salary and the office — a grand total of $25,000 annually,

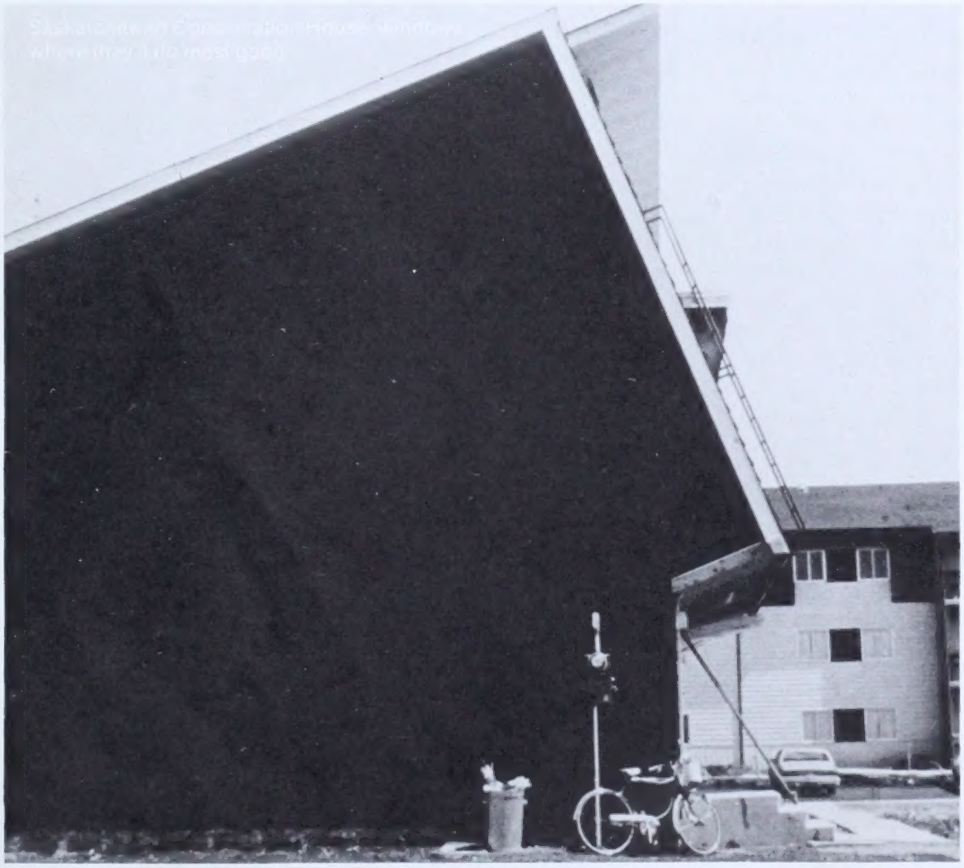


Landry says, "so we run the office fairly frugally."

Volunteer committees concentrate on specific areas. The recycling committee, for example, has produced a recycling handbook specific to the city of Fredericton. Another committee tries to help homeowners who want to curb energy costs in existing homes.

The city has held a series of retrofit seminars — and all resource people donated their time free. There was no admission charge.

"The degree of co-operation is amazing," Landry says. She says she deals with 40 to 50 people on the various committees and personally answers phone calls from many members of the public on a variety of energy conservation issues.



Saskatchewan Conservation House: windows where they'll do most good.

The office challenged Fredericton to a goal of zero energy growth in 1980-81. "At the end of 1980 we'd virtually achieved our goal," Landry says. But it was uncertain what effect some conversion to wood-burning applicances as well as to electricity would have on the 1981 figures.

The important thing, it seems, is that the challenge is not an empty one.

Why does Fredericton care about energy conservation?

The area is heavily dependent on imported oil, Landry says.

Also, as noted in a guidebook produced by the federal Department of Energy, Mines and Resources after the federal project had ended, "The habit of thrift, combined with a strong desire for independence and self-sufficiency, inherited from pioneer days, provides fertile ground for any credible attempt to manage our resources wisely."

The Fredericton and Saskatoon projects are "rays of hope," says Stephen Tyler from his Edmonton office.

"They're an indication that the priorities of the society and the economy may be switching."

It's often cheaper and simpler to use energy efficiently at the end-use point rather than pouring large amounts of money into trying to produce more energy, he adds.

Cheryl Cohen is a journalist in Calgary.

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Environment Update

New VCM Standards Approved

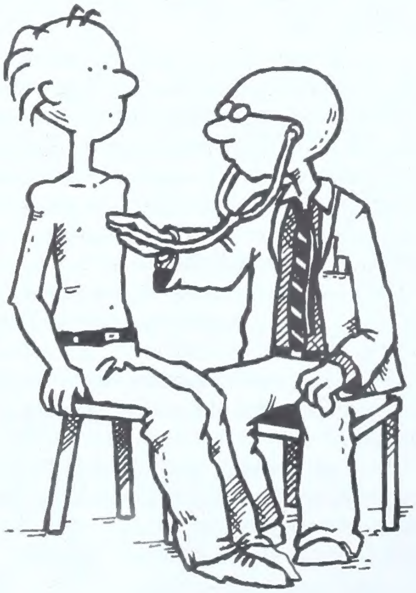
The provincial cabinet has approved new standards for gas levels in vinyl chloride plants in Alberta.

Also approved are new regulations requiring employers to provide regular medical examinations for workers dealing with asbestos, silica dust (which includes coal dust) and vinyl chloride monomer (VCM).

From March 1, the new eight-hour occupational exposure limit for VCM will be reduced from five parts per million to two parts per million.

An explosion at the Dow Chemical plant last May resulted in an unrecorded leak of VCM. At the time, workers' health and safety minister Bill Diachuk promised tougher standards.

The regulations regarding medical examinations have been under study for about two years.



Air Monitoring Under Way

All readings obtained during the first month (November) of a comprehensive ambient air monitoring survey by Alberta Environment in the Fort Saskatchewan area were well below documented health effect levels.

The survey, being carried out by the pollution control division's air quality control branch, is the first comprehensive general air quality study to be conducted in the area since 1976. It began Nov. 1 and is expected to last five months.

As well as examining pollutants commonly associated with urban areas, concentrations of industry-related air pollutant emissions are being determined and the impact of industrial emissions on the town assessed during the study period.

Environmental Biologists Meet

The Canadian Society of Environmental Biologists is a national organization of people educated and working in the biological sciences. Its objectives are to evaluate, and advise the government on, those policies and actions which have environmental implications. The society is also interested in maintaining high professional standards in natural resource education, research and management.

Monthly meetings are held in Edmonton and Calgary, during which feature speakers address resource management and environmental issues. Meetings in Edmonton will be held at the Faculty Club, University of Alberta, February 17, March 17 and April 21. For further information call John Lilley (427-5792, Edmonton), Lewis Cocks (435-7371, Edmonton), or Mark Polet (233-4935, Calgary).

PAL Seeks Members

Preserve Agricultural Land (PAL) is an Alberta-based voluntary organization whose main objective is the preservation of prime agricultural land. Many thousands of acres are lost annually to industrial and urban expansion, airports and highways.

PAL has undertaken to educate the public about this threat, and possible solutions. Two major projects will be launched early this year: the drafting of protective legislation and the production of a documentary film.

PAL territory: a farm near Joffre.

Tim Belec

New members are welcome, especially from urban centres. For information or memberships write to Robert Pocock, R.R. 4, Lacombe T0C 1S0 (telephone 885-4251). Annual membership fees are $10.

If you have a short news item of province-wide interest you'd like to contribute to Environment Update, please send it to the editor at the address on the Contents page. The editor reserves the right to select and edit the items.